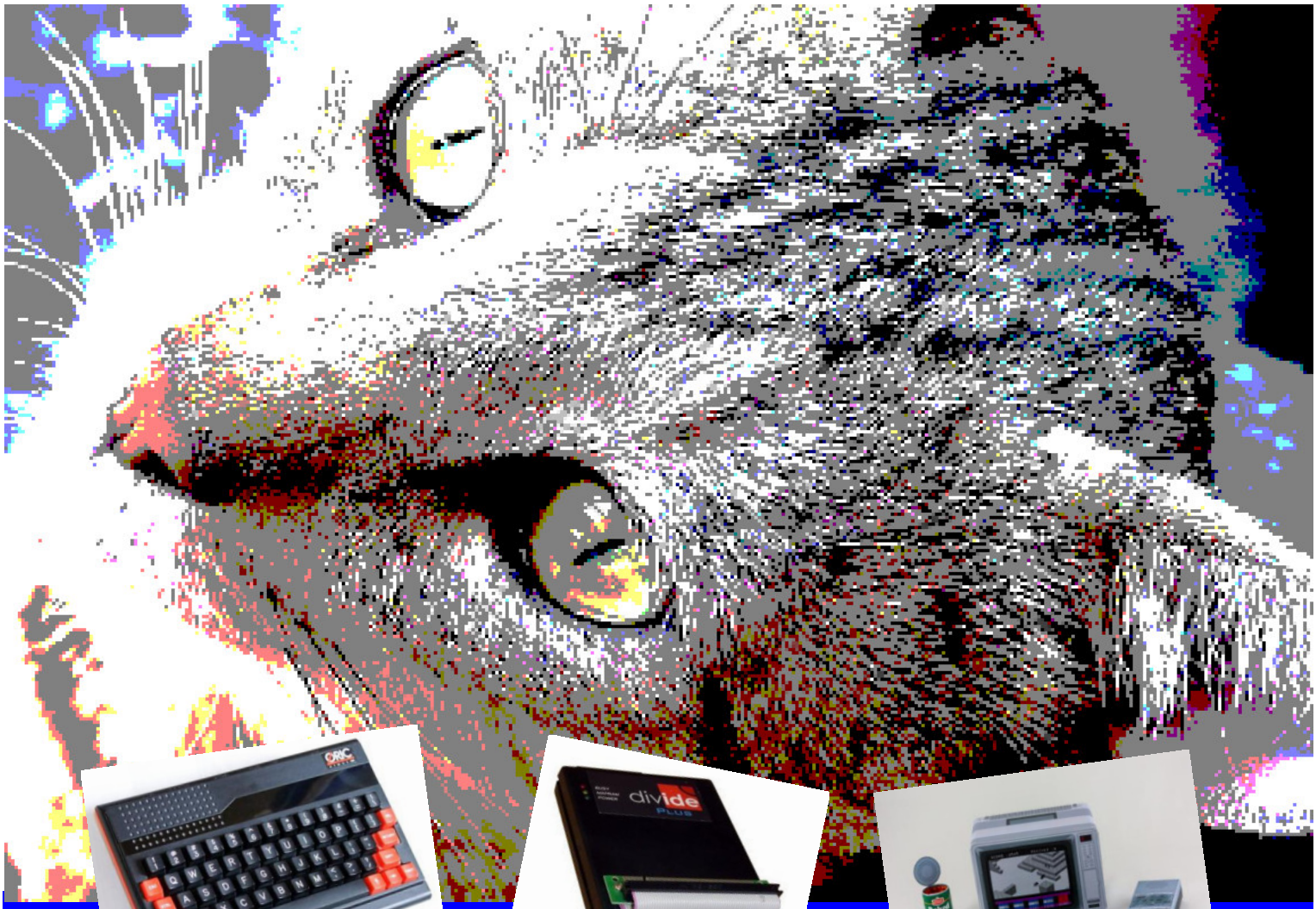
SUC-SESSION

YOUR MAGAZIN FOR THE SINCLAIR SPECTRUM



- News
- Interview with Sir Clive 1982
- IDE Plus - Interface
- Oric Atmos- Story of a failure
- Adventure-solution »*Four Minutes to Midnight*«
- Do it your self? – Thoughts on using the ZX Spectrum
- Games 2018
- And much more …

ISSUE

227.

OF YOUR MAGAZINE

FOR SUBSCRIBERS WITH SCENE+ DISK

THE NEWEST AND BEST PROGRAMS DIRECTLY DELIVERED TO YOU

EDITORIAL

Dear SUC readers,

Once again the virus has us in its grip. After a rather low infection rate last summer, there are currently more than 16000 new infections in Germany and more than 60000 in England. The second wave is in full swing and, in my opinion, will keep us busy until 2021. Fortunately, the overall situation in September was still so good that the Spectrumania in Wittenberg and the club meeting of the Joyce-User-AG in Wolfhagen could take place.

Still the pandemic is talked down by so-called lateral thinkers and ignored by Corona deniers. If the lateral thinkers would use their intellectual potential to actually think laterally, to think up new or different approaches to overcome the Corona crisis - that would be great. But this way, the respective groups only expose themselves to the Darwinian law of Natural Selection. I, for my part, have decided to stop being annoyed by such people. Fortunately, the end of the pandemic is in sight insofar as vaccines have come onto the market and we can thus protect ourselves from infection. At least one evil has been taken from us: Donald Trump has been voted out of office.

Now, enough of this topic! As you have noticed, this issue has become quite extensive. Some interesting articles have reached us, as well as an old article from the beginning of the 80s, i.e. from the time when Sir Clive was temporarily on the road to success and overtaking. The fact that the world's first Spectrum museum was opened in Cantanhede, Portugal, has probably already made the rounds. Here is the newspaper article that appeared in a local paper before the museum opened. Also, the second crowdfunding for the next edition of the Next has been completed - this time with 2MB of memory.

Anyway. By the time the next issue comes out, we'll probably know how the pandemic went and how everything turned out.

We, the editorial team, wish you a Happy New Year 2021.

Stay healthy. Everything will be better in 2021!

Many greetings,
Joachim

January 11, 2021

CONTENT

Editorial, Content 2
Readers' letters 3
On our own behalf 4
News in short 5
ZX-Spectrum museum in Portugal 6
Sinclair's secret - Interview from 1982 7
Parker Brothers – Games for the Spectrum....14
Dark secrets of the Spectrum Next.....14
Do it yourself? 15
22nd Spectrumania in Wittenberg 18
Adventure solution *»Four Minutes To Midnight«*.20
Tips & Tricks.....24
The DivIDE Plus – Part 1 24
Oric Atmos - Story of a failure.....28
8-Bit-IDE- Interface for the Spectrum+3.....30
Games 2018 32
ZX Spectrum Paper Craft Model 45

IMPRINT

The SUC-Session magazine appears in German and English and can be subscribed together with the disk-magazine ***SCENE+*** at the ***»Spectrum-User-Club«.*** For further information please contact Thomas Eberle.

Editor SUC-Session 227:
Joachim Geupel & Thomas Eberle

Editor SCENE+: Thomas Eberle

Club manager:
Mirko Seidel, Adresse: Birkenweg 8
89197 Weidenstetten
email: mirko.seidel1@gmail.com

This issue has been supported by:

Joachim Geupel Joa.Geu@gmx.de
Thomas Eberle thomas.eberle@sintech-shop.de
Ellvis
Harald Lack
Scott-Falk Hühn
Dieter Hucke

The rights of the articles as well as the pictures and graphics are owned by the individual authors and photographers. We thank all helpers for their contributions.

Copy deadline for SUC SESSION 228

Wednesday, March 25, 2021

READERS LETTERS

Hello everybody,
again we received letters from readers for this issue, which we are happy to publish. We need this feedback from you, also constructive criticism. This is our motivation and incentive to continue and improve. An e-mail is quickly written, so please continue to send your questions and comments to: *thomas.eberle@sintech-shop.de*

The first one is someone who has been with us and supplied with articles for over 30 years:
Harald Lack from Raubling:

Hello Thomas and Joachim,
first of all a heartfelt thank you for your untiring commitment to the club magazine. Of course, as a long-time, not to say decade-long Spectrum user, I am shocked at the development of your involvement in the club magazine. If you have been with the club for as long as I have, then this development inevitably comes to you at some point and yet you are surprised, not to say disappointed. Of course it is easier to consume than to produce, but that shouldn't stop us from launching something ourselves. I've been writing articles for various club magazines for more than 30 years (and there are already about 200 of them - but I still have ideas) and in this time I've never heard that my articles are inappropriate or uninteresting. Of course there are always topics that are more or less in the foreground, but there are certainly people in our international but still large community who are interested in all kinds of topics. Everybody is interested in something different, and that is a good thing. Especially now in the time when so much is going on about the Spectrum Next, you would think there are enough topics to report on. Don't be shy, it's not expected to write on Pulitzer level here. But every contribution helps to keep the community dynamic and above all alive. As you know, my focus is definitely on adventure solutions, but I also have a few other topics in my quiver - so let me surprise you. I also find Joachim's article about the VZ 210 great. It's not a pure spectrum topic (but 8-bit), but it does awaken memories in me. In the last class before high school graduation, we actually dealt with computers at school. But that was already 1981 - in the last millennium, so to speak. There we took our first steps with a Commodore Pet. And since I was already interested in computers back then and still am, I bought a VZ 200 in 1982 and took my first steps in programming. Since 1984 I'm the proud owner of a Spectrum and I've been in various clubs for a long time. So, what do we learn from this: Everybody has something to report and even if it is not always strictly related to the Spectrum there are still many computer topics which are of a general nature and about which you can always write something like-everytime. In this sense.....GET ON THE KEYS!
To give a good example I will send my current adventure solution for the next club newspaper.
Greeting, Harald

Hello Harald,
we could not have written a more passionate appeal. In fact there are enough topics. A lot of hardware and software appears and even we cannot know and test everything. Besides, sometimes it is enough to write a letter to the editor, it doesn't always have to be an article. But then we know that the readers are interested in the content of our magazine and that is our reward. So... write.

Robert Boesch from Buchs in Switzerland, has received a sample booklet from us:
Hello Thomas, cool magazine! Thanks a lot.
What exactly do I have to do to receive it regularly (printed). On the website I only see 3 magazines + disc. I'm thinking about what I could contribute, are there any areas you are especially interested in/too little is done? With kind regards,
Roger Boesch

Hello, Roger,
in fact, you can only subscribe to three issues at any one time, as this usually covers one year. Of course you can just buy two times, then you will have two years covered.
If you write articles, this will be credited to your points account. When your subscription is coming to an end, I write to the users. If there are points in your account at that time, I will automatically suggest that you extend your subscription with the points. I.e. with regular articles, you automatically extend your subscription for free.
We are not limited with topics. We are interested in everything and especially in things we don't know or have never written about before. What I can generally say is that we have too few articles

at all. There is no area where we say there is too much. But definitely I can say that we have far too little in the hardware area and in the software area we are well-positioned due to the articles Ellvis and I write (demo and games), even though, I can't know everything and a second opinion is not insignificant. We are definitely happy about everything.

Unfortunately it is also the case that we still run the club only as a hobby. This and the lack of time sometimes lead to confusion. For example with Frank from Bottrop:

Hello Mr Eberle,
animated by your flyer, which you attached to my last order in your shop, I bought the package consisting of three booklets and the Spectrum files in tap format for 18 EUR via PayPal at www.speccyscene.de. This was on 31.10.
Unfortunately, nothing has changed so far, no order confirmation, no shipping info. I have already used the contact form on the website and also sent an email to Mirko.Seidel1@gmx.de, both without any reaction.
Can you help? Thank you in advance and kind regards, Frank Dopierala

Hello, Frank,
I don't have any information here yet, the member administration is done by Mirko. But this is not unusual, we do the club work in our free time and therefore always in the block, so it will work faster. Since the next issue of the magazine will be published in December, there is no reason for club work at the moment (November), so Mirko will collect the work and then add the new members in a bundle right before the next issue. Please understand that this is a non-profit project and time is a rare commodity.
But in any case, it's good that you're involved now. I have Mirko here in the CC, so that he can check if everything went well. But I assume that everything went well.

ON OUR OWN BEHALF

The website of the Spectrum User Club is aging. It was created and maintained by Mirko several years ago. Mirko has no more time and his interests have shifted to his family, which is of course absolutely understandable. What can be better... For this reason he does not maintain the site anymore and the contents are accordingly old.
We want to present ourselves on the web in a modern way again. This requires above all a new and better web presence. On the site the club should be presented, its activities and download of e.g. the magazines, the demos presented in the magazines, the basic gimmicks etc.
However, this project encounters a problem that we were not able to solve until today. My abilities to realize a web presence are limited to HTML, added with occasional splashes of premade Java scripts. Thomas has relatively little time because of his business, Sintech Germany. My time is limited, as I am also involved in other projects.
We are therefore looking for someone who would be willing to design a new web presence for the Spectrum User Club, which meets the current requirements and also maintains it. This does not mean that we, Thomas and I, would abandon the person. The person in question would not be a lone fighter, just as the SUC-session is not the product of one individual. As a matter of course we support him or her as far as we can.
So if someone feels called to actively participate in the club, he or she is welcome to join the team to make the club even better and more attractive.
What is there in return? The programmer, like everyone who actively participates in the club, gets a subscription to the magazine. For Thomas and me that is obsolete, we are sitting at the source anyway. Our work is completely voluntary and maybe one day we will go to heaven as a reward...
And now into action: get in touch with us in large numbers!
Joachim and Thomas

NEWS IN SHORT...

New Opus Utility

Many of our readers still use Opus Discovery. There is already a remake, but sometimes it is clever to use an emulator (Real Spectrum). Especially for the users there is now a new PC utility: Z80onOPD. This program creates an Opus image from a .Z80 snapshot. These disk images can be used in the emulator or transferred to real disks using SAMDISK. The DOS utility is also available in a version for MDR (Microdrive) and DSK (+3 Disk) from :

https://tomdalby.com/other/z80onmdr.html

First Spectrum Museum opened in Portugal

Many may not be aware of it, but the Spectrum played an important role in Portugal as well. Not only the Sinclair devices, but also the Spanish distributor Investrónica delivered a large market share, also Timex built and delivered Spectrum compatible computers here.

The museum is located in Cantanede, about 100 km from Porto and 200 km from Lisbon (and about 20 km from beautiful beaches). So if you plan a trip to Portugal, you might consider visiting the museum. Here is the address:

LOAD ZX, Escola Basica Conde Ferreira,
3060-133 Cantanhede

The museum is open tuesday to saturday from 10.00 to 18.00 pm. If you want to get an insight, visit the website:
https://loadzx.com/en/

An article on this topic was published in the local newspaper, which is printed here in the booklet in German (hopefully correct) translation. (jg)

Buy the NEXT Spectrum

Now everyone finally has the opportunity to buy a NEXT, which is not only available for crowdfunding. As production is guaranteed by the many (almost 5000) orders (as long as nothing happens to the manufacturer), further orders will now be placed via the

https://www.specnext.com/shop/

accepted.

Attention: The delivery date is only August 2021, so you need some patience. Payment can be made by PAYPAL or credit card.

One day son, all these Sinclair power supplies and joysticks will be yours.

OPENING OF THE WORLD'S FIRST ZX-SPECTRUM MUSEUM

LOAD ZX Spectrum is the first exhibition of the museum, which will open in Cantanhede on 17 September. It is the world's first museum dedicated to the computer enthusiasts of the 1980s, which for many meant their first contact with video games or programming.

It is a partnership between João Ramos and the municipality of Cantanhede, following the success of an exhibition in 2019 at the Museu da Pedra in Cantanhede, the municipality where the collector comes from.

The website is available in several languages

English: https://loadzx.com/en/
Portuguese: https://loadzx.com/
spanish: https://loadzx.com/es/

Primeiro museu de Spectrum do mundo abre no concelho

From Spectrum to technique

He (João Ramos) first came into contact with the devices at the age of eight, which he used for the first programming lessons. João Ramos worked as a programmer in computer technology and today, at the age of 42, he is responsible for a spin-off of the Critical Software Group in Coimbra.

Over the last ten years he has started a collection of Spectrum computers, peripherals, interfaces, game cartridges, magazines, manuals and related books.

He has also collected inventions by British computer creator Clive Sinclair, such as electronic calculators, a pulse calculator, radios the size of a matchbox, tiny televisions or even an electric vehicle (which was even used by the pilot Ayrton Senna).

The success of the exhibition in the museum was so great that the municipality and the collector decided to take the next step and set up a museum in the old primary school in Cantanhede.

»It is something that makes us different« said Helena Theodósio, pointing out that the museum is »a journey through time«. The Mayor also said, that the first experiences with the exhibition were so positive (there were even foreign visitors) that she allowed the space to be expanded even before the doors of the LOAD ZX Spectrum Museum were opened: »It will be a great success. I think it will attract so many people that we need to start thinking about another solution,« he said.

Connection to Portugal

The space dedicated to the technological revolution represented by the ZX Spectrum also counts on the little known connection of this computer with Portugal through the Timex company.

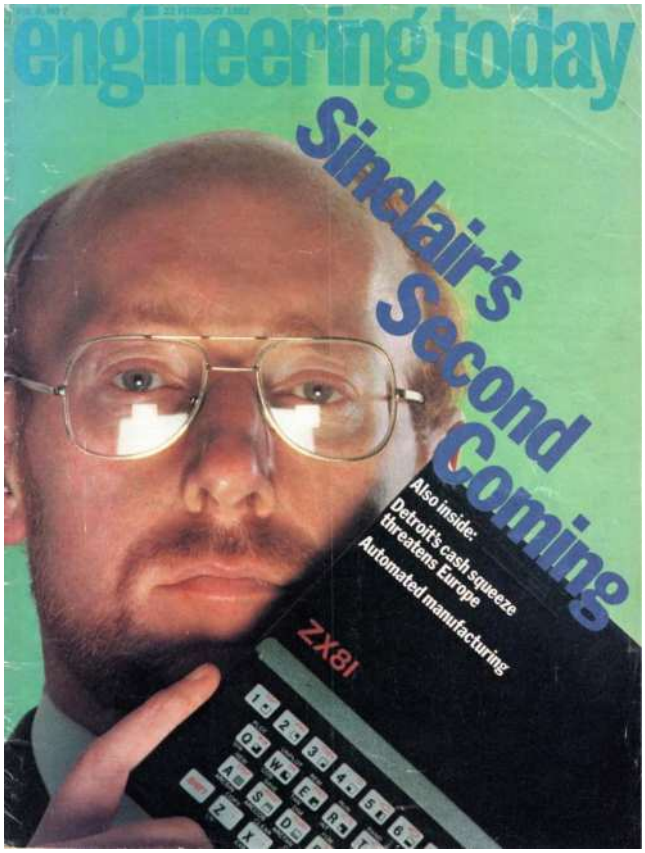
»Timex started working with Sinclair from Aberdeen [in Scotland], but the factory in Portugal eventually switched the assembly line from mechanical watches to electronics and set up a design centre,« he said, emphasizing that Spectrum computers were assembled and developed in Portugal.

For Joãn Ramos, this museum is also an appeal to nostalgia. »The funniest thing is not the computers themselves. It's about remembering your own childhood and what shaped it, whether it's a snack during a game or taking a cassette to a friend's house to spend an afternoon,« he says. It is also possible to find a Portuguese room scene from the 1980s in the museum.

SINCLAIR'S SECRET

AN INTERVIEW WITH CLIVE SINCLAIR FROM 1982

This article was published in February 1982 in the English engineering today and was written by Michael Orme, who also did the interview. Even in retrospect of almost 40 years, this article is still very interesting because it gives the view of things in relation to the computers of that time, the competition with Acorn and the importance of the ZX81. I read the article with fascination. I was most surprised by Sir Clive Sinclair's predictions because he predicted 40 years ago what has come to pass and is reality today. We have user-friendly computers in the form of mouse operation and voice control - Alexa says hello. Flat screens in book format, tablet PCs, electronic mail, i.e. email, electronic shopping, electronic newspapers and portable cordless telephones are commonplace. Only the fax has become obsolete in the meantime. I have only gently adapted the article and removed translation errors, so that it has remained as far as possible in the original, if a translation into German can still be original. So be as fascinated as I am while reading it. (jg)



SINCLAIR'S SECRET

If Clive Sinclair, the subject of this week‘s cover story, were doing his thing in the US, he would be regarded as an esteemed but not uncommon phenomenon — exceptional only in t e range of his designing talent and the fact he is about five years older than the typical American entrepreneur. Unlike in Britain, with ist view of entrepreneurship as vaguely ungentlemanly, and Sinclair as doubly suspect because of the »failure” of his first company, he would be welcomed as part of the other, upbeat economy which contrasts so strongly with steel and increasingly, Detroit.

In the US, the occasional failure is simply the reverse side of the entrepreneurial mode. Indeed, someone who has lived and learned from his failure may, from the venture capital point of view, be a better bet the second time round than the novice who wants to go into business with little or no experience.

To his credit, Sinclair has always put his own resources on the line, selling his own belongings to back the pocket TV and set up Sinclair Research in 1979.

He is also as keen as ever, despite the success of the ZX81 computer, to take still more risks and carry on inventing new products in the shadow of the giant corporations.

Sinclair may have two important lessons for Britain. The first, general message is that such innovators, building new products round state-of-the-art components, and driven by what Adam Smith called »a contempt for risk and the presumptuous hope of success«, are the last best hope for an expanding economy and new jobs.

More specifically, Sinclair demonstrates an instructive methodology, too. It is not a new suggestion that Britain's industrial strategy should heavily emphasise design and innovation, leaving mass production to those who can do it better.

Sinclair has done just this by gettin the streamlined facilities of bigger firms (ICL, Timex) to manufacture his designs. Big companies often lack good ideas. Small companies don't always have production expertise. Sinclair's reverse subcontracting could be the answer.

Sinclair's tinkering talent
by Michael Orme 1983

Clive Sinclair, the inventive entrepreneur who founded Sinclair Research and who outminiaturised and undercut everyone else in the consumer electronics business when he devised the Microvision flat-screen pocket television and the hugely successful ZX81 personal computer, was recently dubbed 'that inspired English tinkerer' by a leading American business magazine. Michael Orme talks to the man who believes that technical barriers are for breaking, markets are for spotting, and prices are for cutting.

Sinclair's recent newspaper advertisements, which pushed the ZX81 personal computer as the ideal hardware for the BBC 's new 10-part series, 'The Computer Programme', was a characteristic response to what he sees as 'incompetence and arrogance' in 'moribund institutions'. In fact, Sinclair is viewed as a brilliant maverick by the establishment, and it is this fearless quality that inspired him to challenge the accepted leaders. Not only has he taken on the world's computer and electronic giants, he aims to take on the Detroit car-giants too.

The world's hottest selling computer is not made by the monster IBM, or some streamlined Japanese producer, or a 25-year-old whizz kid in California. It is made by Timex of Dundee for a man *Fortune* magazine recently called »that inspired English tinkerer, Clive Sinclair. That inspired tinkerer, who refers to himself as »a pirate rather than a captain of industry«, is using the burgeoning profits from the computer to bring to market What, he claims, will be the world's first flat-screen cathode ray tube and also an updated version of his Microvision pocket TV. But that is not all. By mid-decade, Sinclair aims to take on the car giants of Detroit and the likes of Lucas in the electric car market as well.

Sinclair has been in the business of taking enormous risks to try to out-miniaturise and undercut everyone in consumer electronics since he was 22, back in 1962; not always with total success. Some of his projects, including his first crack at the pocket TV market, have fallen at the production hurdle. While he quickly acquired a reputation for technical virtuosity, he was not always entirely successful at making reliable products. For instance, the Sinclair »Executive« electronic calculator was a genuine world first when unveiled in 1972, and it won a lot of acclaim and numerous design awards, but once in the consumer's paws it often lacked durability.

Meeting markets

Sinclair readily admits that he has no aptitude for managing lots of people in production, but he gives avery good imitation of having learned and lived. However, his fundamental drive remains the same as it was when he founded Sinclair Radionics in 1962 and started selling radio and amplifier kits through mail order advertising. As he puts it, »I try to find a market that hasn't been met properly or even spotted, and then try to meet it: for example, flat-screen TVs or electric cars«. He reckons his strength lies in cracking the technical problems involved in designing such products at rock bottom prices. »I don't mind where the problem lies,« he says rather coolly. »There aren't any barriers on the technical side.«

The electric car is a case in point. Sinclair argues that »to come up with a viable vehicle you need to rethink everything — body, chassis, transmission, steering, batteries. In other words, you need to start from scratch and even develop new materials and composites. My impression is that most other electric car projects in the world are taking pretty conventional vehicles and sticking in electrics.«

As a corollary, Sinclair believes he has an advantage over the General Motors of the world »who have grown up with cars and are old businesses with big sunken investments in old methods and approaches. Unlike them, we don‘t have to get rid of preconceptions. We’ are not basing our attack on the price of petrol, but on doing something radically new that stands on its own account.«

For the time being, the electric car project has been split into parts and farmed out to universities and consultants. Sinclair reports that a new lead-acid battery has already been designed by a consulting group and that the aerodynamics of the vehicle are being worked on at Exeter University. Sinclair will not give details but predicts that he will bring his electric car to market by 1984. He confirms that he is not receiving any government funding for the project - unlike his flatscreen cathode ray tube, whose R&D was backed by the National Research Development Corporation (NRDC) to the tune of £500,000. But Sinclair says that it would be an obvious ploy to set up production in a development area to attract government grants.

The ambitiousness of the car project is characteristic - as the sceptics have been quick to point out. If the company came a cropper on it, it could bring down the whole enterprise in the process, rather as problems with the Black Watch digital timepiece were primarily responsible for driving the old Sinclair Radionics business into the red and into the arms of the NEB in 1976. This time, though, the crash would be on a much grander scale, thanks to the outrageous success of Sinclair’s personal computers.

Consumer aims

In July 1979, Sinclair backed out ofthe NEB to form Sinclair Research because he wanted to concentrate on consumer electronics and the NEB didn't. Sinclair announced that the aim of the new company was »to conceive and develop new products in the consumer electronics field«.

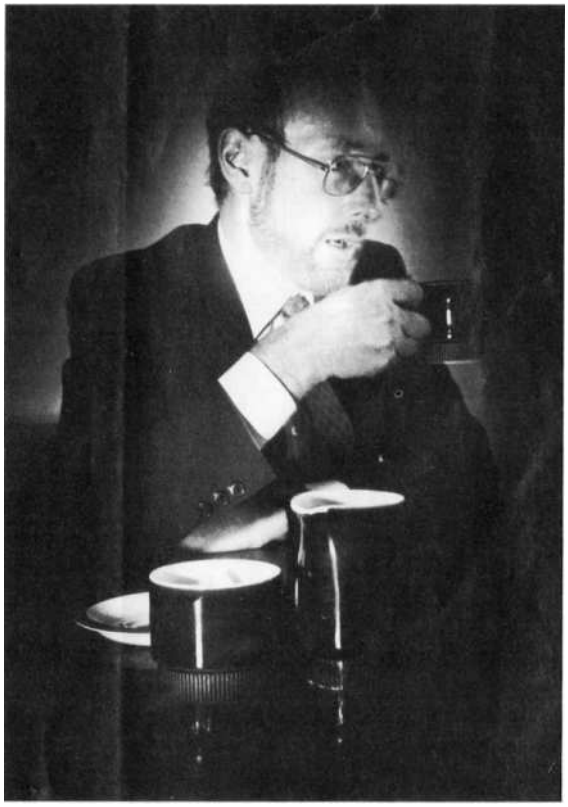
The first product, launched in February 1980, was the ZX80 personal computer. It was the first computer in the world, apart from knock-down kits, to sell for less than £100. Sinclair said that it was aimed at the man-in-the-street wanting to learn how to program a computer as well as the hobbyist. It was sold Sinclair-style through mail order advertisements. In the first year, 70,000 were sold, more than half of them abroad. But there were hints of some familiar Sinclair problems over quality and reports of a high out-of-box failure rate. In a sense this didn‘t matter, because many of the people who bought the computers didn’t know whether the machines were working properly or not, and stuck them in a cupboard for a rainy day. In other words, the ZX80 was a bit of a gizmo.

But in March 1981 came the real breakthrough, with what is an undeniably brilliant product for the price, the ZX81 computer. A new master chip designed by Sinclair Research and custom-built in Britain by Ferranti replaced 18 chips in the ZX80. Sinclair comments that »having mopped up all the logic in the master chip, we were able to reduce the chip count right down to four. There is no-one else offering a personal computer with less than 40 chips.« As a result, the technically superior ZX81 was offered for less than £70 and for less than £50 in kit form.

At the same time, Sinclair subcontracted the manufacturing to Timex in Dundee, which was already doing subcontract work for customers as diverse as IBM and Polaroid. The combination of Sinclair’s highly innovative design and Timex’s manufacturing efficiency has been explosive. Production began at 10,000 a month but rose to 20,000 a month by late last year. It is now up to 50,000 a month and is due to rise to 60,000 a month by the spring. This makes the ZX81 the fastest selling computer in the world. »By pricing his computer way below $200, Sinclair has opened up a completely new market among people who had never previously considered owning a computer,« notes Ben Rosen

of Rosen Research, the doyen of American electronics analysts. Sinclair comments drily: »It was a surmise that the man in the street would want such a computer. He does, and our information is that a lot ofpeople are using the machines avidly.«

The success of the ZX81 is triumphantly underlined by Sinclair's recent deal with the Japanese. He explains that as the result of an approach by Mitsui's London representative, »We have agreed that Mitsui will test-market the ZX81 for a year in Japan. If this is successful, Mitsui and Sinclair will set up a joint venture to make the machines in Japan. But we'll have the controlling stake.« The fact that Mitsui approached Sinclair in the first place and has held out the prospect of a controlling interest for Sinclair in the joint venture in the second, is the highest compliment that could be paid to a non-Japanese electronics company.



Sinclair says: »We're taking our own route into consumer electronics. We don't fear the Japanese quite simply because we have the technical lead. The Mitsui deal shows that. Besides, the Japanese producers seem more interested in going IBM plug-compatible round the Intel 8088 microprocessors into small business systems than into our part of the market.«

Meanwhile, Sinclair sees no need to develop a ZX82, because in chip count, design and price the computer is way ahead of the competition. As a result, Sinclair Research (which now derives 50% of its revenues from ZX81 sales and the rest from such accessories as memory packs and printers) is growing dramatically. From nothing two years ago, company revenues had swollen to over £20 million a year by late last year. With better than doubled ZX81 sales since then, they may well be running at nearer £50 million today.

Retail deals

The ZX81's charisma has led to some interesting collaborative marketing deals, apart from the one with Mitsui. In the US, the ZX81 has been mailshot to American Express customers, and Sinclair reports that the first returns from this are encouraging. In Britain Sinclair has signed a »mutually exclusive« retailing deal with high-street newsagents and stationer W H Smith. The deal, which was originally to have run for six months, has now been extended to a year. ICL (among others) has also made a nice living off the ZX81 by selling games cassettes alongside the computers in W H Smith. At the last count, ICL had sold 100,000 such cassettes in less than three months.

If that wasn't enough, British Telecom wants to use the ZX81 to link up a database of programs stored on 1,000 pages of Prestel. It is now inviting proposals for a suitable adaptor which will be cheap enough to attract the kind of person who has laid out £70 on a personal computer and wants more.

This fits in neatly with the next strand in Sinclair's computer strategy, based on his flat-screen cathode ray tube technology. This time last year, Sinclair announced that he was having a second crack at the pocket TV business. His first try had ended 18 months before when the manufacturing rights of his Microvision were sold to Binatone.

The new venture, predictably enough, is not modest. It involves investing £5 million, over half of it public money, in a new Timex factory at Dundee. As with the ZX81, Sinclair is sensibly leaving it to the experts to handle volume production. The big difference between this project and the Microvision of the late 1970s is that the new version can properly be called a »pocket« television. It will be smaller than a paperback book. The key to it is the flat-screen tube developed by Sinclair Research, partly with NRDC money.

Sinclair Research has been making the tubes in volume at a£100,000 pilot-scale plant at its St Ives, Cambridge, facility. Sinclair is convinced that he leads the world in tube technology. His reaction to last month's announcement of an imminent and

potentially competitive offering within the next few weeks from Japan's Sony pulls no punches. »It looks as though the tube is projected on to a right-angled screen. It can't be a flat tube, or if it is, the whole thing is bloody clumsy and uses far too much space doing nothing. Besides, the Sony set is about three times the price of our Microvision.«

Although full-scale production of the Microvision at Timex has been put back by several months, Sinclair is confident of success once it moves off the line sometime during the second half of the year. »People have raved about the working picture, « he says and predicts that, »at £50 a time, the sets should open up a market of millions a year on the old Boston Consultants' price/volume theory«, He expects to sell one million Microvisions in the first year. He adds, for good measure, that in about two years' time the company will probably be offering a companion 12-inch colour set for £100.

In spite of past problems, this cannot be dismissed as just big talk. For one thing, the success of the ZX81 is impossible to argue with; for another, his cathode ray tube technology will not rely entirely on sales of pocket TVs to be a success. For a start, the tubes can be used in projection systems. Sinclair reckons that three such tubes could be used to give a colour display measuring 50 inches diagonally with the electronics fitting into a unit the size of a shoe box.

COVER STORY

Sinclair's tinkering talent

COVER STORY

Meeting markets

Consumer aims

Retail deals

But much more important is the application of the technology to a new generation of personal computers. There is a rumour that ICL's boss Robb Wilmot was set to leave Texas Instruments early last year to join forces with Sinclair, but was then deflected to hammer out a product strategy for the ailing ICL, which he joined as managing director. Whether this tale is true or not, Sinclair reports that Wilmot approached him last year about a collaborative deal between Sinclair and ICL to design and develop a desk-top workstation based on Sinclair's flat-screen cathode ray tube.

Design and royalty

Sinclair confirms that Sinclair Research is doing »most of the design work and will receive a royalty on every unit sold«. ICL aims to bring the workstation to market in 1983 and to sell it hard in the US as well as Europe. »The workstation« says Sinclair, »will be a general purpose machine, with built-in connectors to the telephone and PABX, which will handle both voice and data.«

This, hints Sinclair, will in turn lead directly into the next generation of home computers. The ZX81 will suffice for what he calls »the interim stage. while people learn to program, or use their computers for games«. But by 1983-84 Sinclair sees the prospect of »genuine home computing «, when the equipment will be linked by telephone (or even by cable television) to Prestel-style databanks. Clearly, the Sinclair-ICL workstation, with ist emphasis on advanced cathode ray tube technology and telephone links, can, and almost certainly will, be spun off into the home in the future.

However, amid all this success, there is one failure. Sinclair is clearly upset by the British establishment's refusal to endorse his ZX computers. He has been particularly irked by the saga of the BBC microcomputer, developed to accompany the BBC's computer literacy series. His account is that he joined forces with Acorn's Chris Curry to oppose the business being given to Newbury, an NEB company, without any kind of outside tender. As a result of telephoning the BBC, »I had a friend-

ly meeting in London, and I invited those responsible to come to Cambridge the next day for more detailed talks. They were supposed to arrive in Cambridge at noon, but didn't show up until 5 p.m. and were anything but friendly, but extremely short tempered and dismissive. It was clear to me, later, that they had already decided to go with Acorn when they saw me.«

Sinclair is careful not to lay the blame at Acorn's door, »They had to respond,« he acknowledges. But he accuses the BBC of incompetence and arrogance, and argues that the whole business is suspect anyway. »What would happen if there were to be a special BBC car for a car maintenance series with the BBC getting a 10% rake-off on each car sold, or if there were to be BBC toothpaste? Imagine the outcry.«

Nonetheless, there is no doubt that Sinclair would have taken the business if he had been offered it. He declares roundly that Sinclair Research could have produced a machine for £120 to BBC specifications, on schedule and in volume. This is a hefty sideswipe at Acorn, which is having production problems and is charging a lot more than that (a minimum of £299) for the computer which the BBC actually chose.

Basic choice

There have been fierce arguments over the BBC microcomputer, but for Sinclair much of the controversy surrounds the choice of the particular brand of Basic (the high-level computer language increasingly used in personal computing). He says that his Basic, known modestly as Sinclair Basic, is fast becoming the standard and that the BBC, ill-qualified to make any decision at all on the matter. has chosen to go with something else. He points to ICL's decision to use Sinclair Basic in its workstation and the recently announced Timex distribution deal in the US as supporting his case. Another current argument is that unit sales of ZX81s, worldwide, are greater than global sales of Apple, Tandy, Commodore and Acorn put together.

Sinclair is adamant that he will not compromise over Basic, which is why he has no plans to build a »BBC Sinclair« and compete independently with the Acorn BBC microcomputer with a specially-modified machine of his own.

The point is that Sinclair remains an often brilliant maverick in the eyes of the establishment. It is interesting to note that his new publishing venture, Sinclair-Browne, will only publish books that reflect »a progressive approach to the problems of society«.

When asked what he means by »socially progressive«, Sinclair talks about »moribund institutions« and the fact that »all but five of the cream of last year's Cambridge economics graduates went into the City of London«. Says Sinclair: »What this country lacks more than anything else is entrepreneurs and managers, people ready to start up new businesses, whether in a fairground or in electronics. But without such people, and their new enterprises, unemployment and misery will simply compound as older industries shed labour.«

The future, on this argument, lies with innovators ready to have a crack and take huge risks. In the case of Sinclair, the risk-taking goes on. Despite the success of the ZX81.

Sinclair is prepared to stake the company on his cathode ray tube technology and then on his electric car.

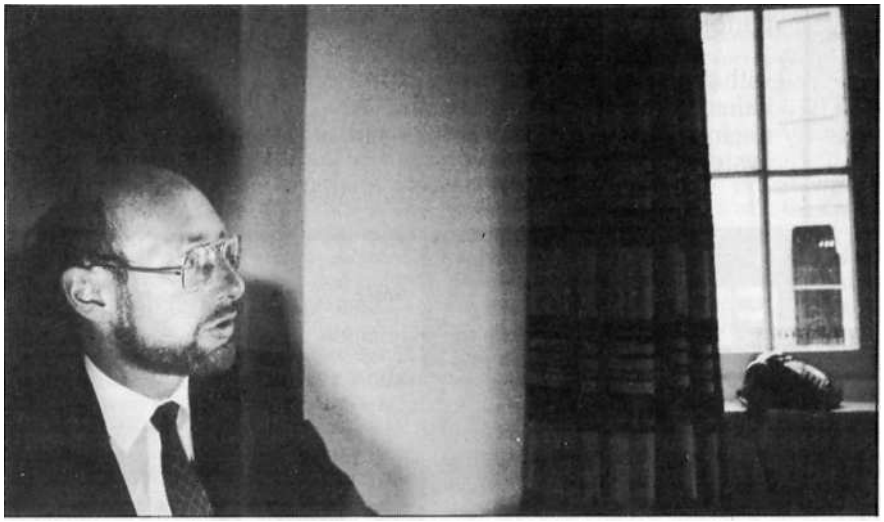
Coming soon: games and gizmos galore

A good nominee for an annual »Decline and Fall of Western Civilisation« award is the device that turns your TV on and off to the sound of a handclap. Nonetheless, there are products on the way which will revolutionise our way of life, and many of them will centre on the introduction of genuinely personal computers and personal TVs (Clive Sinclair's special interests).

Until the 1970s, only one or two major consumer electronics products were introduced every decade. There was the radio and the phonograph in the 1920s and 1930s, black-and-white TV in the 1940s, stereo and colour TV in the 1950s and 1960s. But in the 1970s, a proliferation of electronics for the consumer began. Why? Because of the advent of low-cost high-performance microelectronic circuits. These were churned out like jelly beans on the Boston Consultants' »learning curve« so that all kinds of thresholds were cracked, and the same theory started to drive end-products such as handheld calculators, digital watches, video games, video cassette recorders, video disks, electronic scales, language translators, learning aids, intelligent thermostats, appliance controls and personal computers, to mention a few.

The beat goes on today as the semiconductor industry tries to offload 100,000 billion electronic functions per year into the world market by mid-decade. This can be done (possibly) if microcomputers become pervasive in Western homes.

Give a designer almost »free« intelligence and he'll give you a new product, usually a gizmo or a game. This probably means that up to two-thirds of all the consumer electronics products which will be on the market in 1990 have not even been conceived yet.



All this offers immense scope for clever people with bright ideas to come to market with products, even if the manufacturing is subcontracted to a large company (more and more of them will have slack which can be used in this way). The alchemists of Silicon Valley (usually aged under 30) have shown what can be clone with brains and state-of-the-art components. And an oversupplied venture capital industry is beating a path to the high-technology entrepreneur's door. He invents products in the shadows of giant companies and then lives on his wits.

In short, microcomputers, made in their millions, will spawn millions of new electronic products for the consumer. The most notable items will include the flat-display book-sized colour TV set, electronic mail, electronic shopping, home facsimile, home electronic newspapers, portable cordless telephones, voice synthesising appliances, home surveillance systems and so on, including »user friendly« computers.

It's easy to see how Sinclair sees himself slotting into much of this. The world may even want electric cars as well, although the mighty GM (strapped for cash) has put ist electric car project on ice for the time being.

Science-Fiction-Products

Sinclair himself sees little to hold back the world of science-fiction consumer products. He suspects that the masses of new products he and his competitors are selling will trigger a surge of innovative products, and not just video games designed by teenagers using their personal computers.

Within 20 years, he sees the prospect of microminiaturised robots travelling inside human arteries relaying the view by television and performing operations with the help of surgeons outside. He has even said that, if he had enough money, he himself could market such systems.

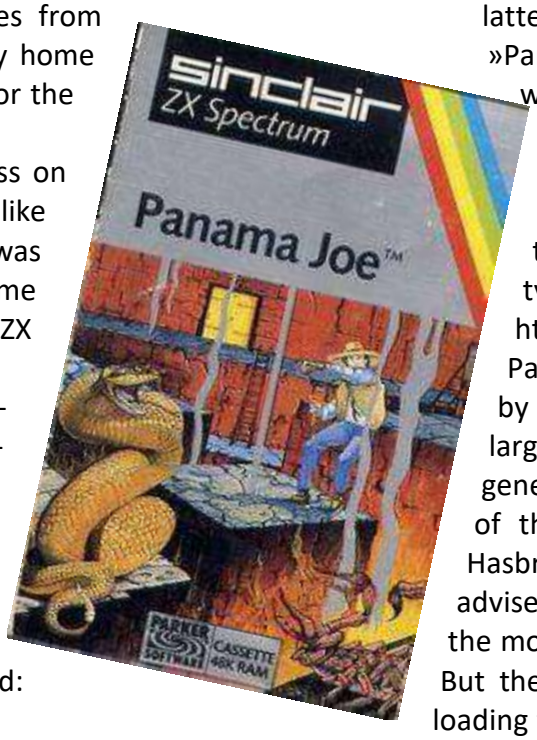
Perhaps his ultimate dream is a personal flying machine, as easy to use as a car. He gave this project a lot of thought but decided it would never become airborne as a Sinclair company.

PARKER BROTHERS
GAMES FOR THE SPECTRUM
BY THOMAS EBERLE

In mid-1984 the video game world was in a state of upheaval. The classic consoles from Atari or Philips were replaced by home computers like the ZX Spectrum or the C64.

Parker Brothers had great success on consoles, especially with hits like Frogger or Q*Bert. This success was now to be transferred to the home computer industry, including the ZX Spectrum.

However, the game console mentality had not yet been completely abandoned, because the games were not to be released on the Spectrum cassette, but on modules for the Interface II.



The following games were planned:

- Popeye
- Q*Bert
- Gyruss
- Star Wars - The Arcade Game
- Return of the Jedi - Death Star battle
- Loco Motion
- Montezuma's Revenge

Unfortunately, Parker Brothers decided to withdraw completely from the video game industry shortly before the launch. Only the games »Return of the Jedi - Death Star Battle« and »Montezuma's Revenge« were later released on cassette, the latter under the name »Panama Joe«. All other titles were lost until the website TZXVault made prototypes of the games available again: All modules including the never released prototypes can be found:
https://tzxvault.org/roms.htm

Parker Brothers is now owned by Hasbro, one of the world's largest game manufacturers in general. Whether the copyright of the games is still owned by Hasbro, we do not know, but we advise against copying and selling the modules on Ebay like others do. But there is nothing against downloading them for private use or burning them on an eprom to play them with Interface II. A manual for this is available:
http://www.fruitcake.plus.com/Sinclair/Interface2/Interface/Interface2_Introduction.htm

You can also access other cartridge contents from there via links. An almost forgotten chapter of the ZX Spectrum.

(Te)

DARK SECRETS OF THE SPECTRUM NEXT
BY THOMAS EBERLE

The Spectrum Next is a success story in itself. At the first crowdfunding, just under 3000 units were sold (computers + boards), at the second time even more than 5000 units. Although there were also many multiple buyers and the computers ended up on Ebay, in the end these buyers also found buyers and the official Spectrum Next group on Facebook now has almost 10,000 users. In other Spectrum Next groups there are more than 2000 more users, so that one can assume that the Next still has more fans than users, even if many users are members of several groups.

Meanwhile an antipathy against the manufacturer SpecNext Ltd. is increasing.

The creator of this article has also been removed from the Spectrum Next group, because he assumed that in the worst case

people have to expect to pay taxes twice after the final Brexit next year.
. This is an idea that nobody should like and hopefully will be prevented, but the negotiations with the EU and Great Britain are still stalled, so that it is not certain what will happen with deliveries from Great Britain in 2021. The decisions according to which a user fits into the group are not quite clear, but obviously it is like this: As long as you do not express anything that can be perceived as criticism, you are welcome, all others will find themselves in other groups. But which criticism is actually justified?

- Who invented it?

According to the manual, the Spectrum Next board was first developed and sold in Brazil. But that is not quite correct. The basics for this were published in Chris Smith's book »The ZX Spectrum Ula: How to Design a Microcomputer« in 2010. On this basis there were some developments, including the ZX Uno, which in turn is the basis for the Spectrum Next. Of course, the statement is not wrong because the Spectrum Next was developed in Brazil.

- Is the Spectrum Next CE approved and therefore safe?

The Spectrum Next lacks both the CE mark and a TÜV test seal. Strictly speaking, it should not be sold like this. However, the UK is in a grey area, the brexite has been decided and implemented, but there is agreement that nothing should change until the end of 2020 and that the new regulation will only come into force from 2021. Only then will manufacturers in the UK be obliged to have their own marking, the so-called UKCA mark. Since the old rules will continue to apply until then, SpecNext Ltd. should have provided for CE marking as before. That this has not been done must be legally clarified in Great Britain, for users from other countries this means: They are responsible for the equipment themselves. Equipment without CE marking may not be put into operation. Different rules may apply in the USA or other countries outside the EU. However, if you use the device anyway and a house burns down as a result, for example, the insurance company will not pay and you will be held responsible. Many users are not aware of this, and for understandable reasons SpecNext Ltd. does not communicate this either. After all, the company has promised to provide labelling for the next production. Whether this can be kept, since in 2021 the
UKCA label is relevant and it is not clear whether it will be recognised in the EU, we do not yet know. In any case, the equipment from the first production should never be operated without supervision for safety reasons.

- Lack of licensing?

The Spectrum Next uses an HDMI output. Other devices had already waived this output, as it involves considerable licensing fees. A reference to HDMI licensing is usually common when you put such a device on the market. However, this reference is missing from the
Spectrum Next. Does this mean that there is no licensing, or that you just forgot the notice? Asking is not desired. In any case, it is obvious that the output
was called »digital output«. It is still an HDMI output.
It is understandable that SpecNext Ltd. wants to keep these secrets. However, the way we deal with members of the community is still in need of improvement and open communication is better than what would otherwise occur.

(Te)

DO IT YOURSELF?
THOUGHTS ON USING THE SPECTRUM
BY HARALD LACK

Many people who are involved with the Sinclair Spectrum not only use it to play, but also devote themselves to so-called »serious« topics. These are hardware development on the one hand and programming on the other. As we know from the forums, hardware development is always - thank God! one might say - still strongly represented. Last but not least the adaptation of modern components to the Spectrum, as it has been seen again and again in the past, deserves our recognition. For many people, and I include myself in this, it is good to know that there are still people who know how to repair a Spectrum in the most profane way. But as a »non-technician«, I too have

always followed technical developments with interest. After my Spectrum 16K I bought the Spectrum 48K (still in use today without any problems) and even a Spectrum+2. This one was especially designed to play the »big« adventure programmes which are available in some cases. Some of them are still in development. After the Sinclair/Amstrad era some of us oriented ourselves towards the SAM, which offered a certain compatibility and a considerable technical progress. Some of us also migrated to emulators - but for me this can only be a »substitute« for the real Spectrum-feeling until today. In recent times the development of the Spectrum Next has proved to be particularly interesting and the discussions and reports on it in the Spectrum Forum are in my opinion both very interesting and promising. But back to the actual »Spectrum« in its classical form. Now we know that the Spectrum as a computer does not have a »real« operating system in the true sense of the word. After switching on the computer, you will find yourself in a BASIC interpreter in ROM, which allows you to load programs in BASIC as well as in machine code by means of the commands implemented in it. But some of you may not be satisfied with »consuming« given programs. Perhaps one or the other of us has already had a kind of software project in mind that we have wanted to implement for a long time. Often it has remained that way, the author knows what he is talking about. It's actually a pity, but is it due to external influences and we are happy if we can justify our »inactivity« with it. And if you decide to create something, you are faced with the risk of having to deal with programming. At this point, allow me to take a short excursion into the theory of programming, so that we can later - in further contributions that I have planned in loose succession - start from a common basic understanding. But it should be said already here that certainly more experienced users than me will have more to contribute to this.

Admittedly, theoretical considerations are not everyone's cup of tea, but I think they are - to a limited extent - simply part of it. Of course, there is enough literature about programming and the omnipresent internet offers a lot of information - some interesting, many rather superfluous. You just have to take your time to separate the wheat from the chaff. But that is a matter of opinion. The best thing in such situations is to know someone who can help with advice and support. I also don't want to go into the theoretical depths and work from »problem to programme«, so to speak, because that would also include topics such as flow charts and syntactic logic. Those who are involved in programming should work in the way that suits them best, individual personal habits should be taken into account. But this brings us first to the fundamental question:

Programming - what for?

In rudimentary terms, many of the processes we encounter in everyday life are often so uniform and recurring that it makes sense to use machines or even computers for them. This has the advantage that we can concentrate on other, often more important problems and that computers are made for recurring activities, and - and this is an important point in our view - machines do not make mistakes! Provided, of course, that our instructions (programming) are correct and conclusive. A program is a collection of systematic instructions whose application (by the computer) is subject to fixed rules. And this is independent of the language in which we want to write our program afterwards. In technical terms, programming is the process of first mentally analysing the existing problem and then putting together suitable sequences of commands and instructions to make the computer execute these instructions correctly (and meaningfully). I admit that this was now very theoretical, but this is how we can express our work on the computer during program development.

What does programming mean?

Programming is roughly divided into four steps: problem analysis (what do I want to do), program flow chart (these are the things we like to leave out, because it's all about creating a plan, a so-called flow chart, how to approach the problem to be solved systematically), programming or coding

in the respective language and then the test run. The test run is the one that will take a lot of time, because if one thing is certain, it is that programs - no matter how simple they are - will usually contain bugs. Fortunately, humans are not machines. These errors can be roughly divided into typing errors, syntactical errors (e.g. wrong language elements or commands), semantic errors (errors in the logical structure) and errors in the structure of the programme. In the wild, typing errors are probably the most common.

From problem to program/algorithm

About the topics I have discussed in the previous section, a reasonably experienced programmer might smile pityingly and say that his code can be typed directly into the computer. Yes, this may well work for small and simple problems, but at the latest when programs or problems to be solved with them exceed a certain size and complexity, it will not work so easily anymore. I can only confirm this from my own painful experiences. It is only too easy to overestimate one's own abilities and then have to live with the result. Here a little self-discipline is often the way to better programmes. Since you won't necessarily be able to read a program code like a book (it needs a lot of routine), the use of the flowchart might be interesting in some cases, I at least can grasp or read a program structure faster with it than with the source code in the respective programming language. Since our Spectrum already has all necessary interfaces to the individual parts of a computer system (working memory, screen, I/O devices etc.) in its ROM, we will spare ourselves the need to talk about the structure of computers. You don't necessarily have to know what is happening »under the bonnet«.

In which language should I programming?

Well, this is now a question of faith, which can only be finally decided from one's own perspective. As the owner of a Sinclair Spectrum, you automatically get the BASIC language when you switch it on, so to speak. That's not too bad, even if BASIC *(Beginners all-purpose symbolic instruction code)* often had a bad reputation in the past, wrongly as I think. It had the disadvantage that it would create a confusing »spaghetti« code due to the easy to use jump commands *(GoTo, GoSub)*. Well, this is also a little bit due to her own procedure and less to the language itself. You just have to look at your own nose and try to get structure into your program (see my thoughts above). The computers, which populated the well equipped market of »home computers« with the Spectrum were names like Commodore C64 (partly also the Commodore Pet), Atari 400/800/XL, VZ200 and some others and all of them offered BASIC as a programming language. Therefore working in BASIC (in the respective computer specific dialect) was very common in these times. Unfortunately, due to the different BASIC-interpreters, programs could only be transferred to other computers by hand and even if this was still relatively easy, one had to deal with different screen outputs. Therefore, the transfer of BASIC listings, which were often printed in computer magazines at that time, required considerable effort to get them running on your own computer. Who doesn't remember some nights spent in front of the computer, only to not find the very simple program error in the end. Not to forget that the programming was always done in dialogue mode. After the used
BASIC was coupled with an interpreter, you could quickly test the entered programme code with the command RUN or RUN line number. But for the Spectrum there were and are a lot of other programming languages. On the one hand, there were so-called high-level languages (BASIC, C, PASCAL etc.), on the other hand, there were also the machine-oriented assembler / disassembler environments, which directly created processor-specific machine language programs by entering mnemonics that were »easier« for humans to understand and then assembling them. There have been many contributions to this topic and I also had a look at the Z80 code many years ago. Soon I would like to introduce a programming language to you, which is very interesting on the one hand and for which there are also different versions / implementations for our spectrum, namely FORTH. Of course, this will not be a programming course in FORTH - I don't expect us all to take that - but I will rather present the powerful version of ARCUS FORTH, which Michael Balig developed in the 80s. Until then, I would like to end my basic theoretical considerations on programming for today.
See you soon for the Arcus Forth - FORTH implementation on the Spectrum.

Harald Lack

22nd Spectrumania in Wittenberg

by Thomas Eberle

Despite Corona, finally a ray of hope, the 22nd Spectrumania-Show in Wittenberg took place. There were some cancellations, which is understandable, but somehow I wanted to find the way back to some normality... and the annual visit to Wittenberg is already something normal for me.

Joachim, who arrived half an hour earlier than usual, was also full of expectations. Anyway, we had agreed to set off for the 6-hour trip an hour earlier than usual. We stayed with these 6 hours because the early time saved us the usual Friday afternoon traffic jam and so we arrived in Wittenberg around 7 pm early enough to join the other Friday arrivals for dinner. In fact, meeting the early arrivals also meant meeting almost all the visitors in advance. Most of them came from further away and therefore had accepted a longer journey. There were new faces, people I hadn't seen for a long time and also people who are actually there every year. Oh horror, we were infiltrated from the Atari camp as well...Stefan proved to be amazingly sociable and open, especially he has a ZX81 and maybe soon a Spectrum Next. On the other hand there was also interest and exchange of Atari news. After all, the most active AtariClub in Germany has about 500 members, no SinclairClub has such a number, but the Facebook community of SpectrumNext does (about 7000).

So the first evening in a Greek restaurant in the heart of Wittenberg came to an end and we all wanted to be rested and at the meeting early the next day.

We were also on time, but unfortunately we were standing in front of closed doors. Apparently the Adult education centre, as tenant of the building where the meeting took place, had given the organiser Norbert the wrong keys. The main gate to the car parks could not be opened this way, but luckily the keys fitted to an entrance at the street and we also found all car parks nearby. I didn't have much with me, my Spectrum Next and a monitor and some things to sell. Joachim I also had the same light luggage, so we didn't mind walking a few metres. Others parked right in front of the building to unload and luckily no traffic warden came by to give out parking tickets. Norbert had his mobile phone with him and all participants had his number from the Spectrum-Forum, so that everyone found the unusual entrance.

Inside, we generously occupied two classrooms and thus maintained the prescribed distances. Since there were not so many participants, everyone could spread out as they wished. To my surprise, it wasn't the Spectrum Next that was the most built computer, but actually the ZX81. Has the Spectrumania been infiltrated here? Well, it stays in the family. Of course, there was a lot to see here, too, e.g. a ZX81 laptop of my own making in a wooden box (wooden box for slides from GDR times). Surprising but also astonishing was the self-made reproduction of a Pong game console, including 4 wired boards and paddle controller. I myself could finally dedicate myself to the study of my Next, exchange information about

Pong! The replica of the Pong game from Atari

ComputerAlien - but still welcome

different functions or just try it out. So we soon had the Next logged into the offered WLAN network, but except for a teletext server I was not able to connect to the outside world. That will probably come later.

Apart from that there was a lot of playing, programming, making music and also talking. Joachim and I presented our club magazine and were able to win three interested parties and the acceptance of some articles. But my personal highlight was the book presentation by René Mayer. René is a journalist from Leipzig, a RetroFan and of course also a Spectrum owner. His collection is in the Guinness Book of Records as the world's largest collection of game consoles. He regularly exhibits these and others and organises the »Long Night of Computer Games« in Leipzig. Among other things, he also organises the Retro-Schau at the GamesCom (the world's largest computer games fair in Cologne). As a link between his Retro-Hobby and his journalistic work he wrote the book »Computer in der DDR« and found a publisher in 2019 with the State Agency for Civic Education Thüringen. We will report on the book elsewhere. Both his short lecture and the following chat were very interesting and again I could only wonder what there is still that I don't know.

ZX Spectrum clone: ZX Spectrum Nuvo

As always, we had to leave the premises before 7 pm and set off for dinner. Unfortunately the usual barbeque did not take place, because the landlord was not able to serve it in Corona times. Instead we met in the same restaurant as the evening before. The evening ended with a full stomach and endless spectrum ideas and so we went home, even if »Waldemar« could hardly be stopped why not to attend a techno party in the city centre. In the end we decided to rest in the evening and enjoy the last day of Spectrumania the next morning. Sunday was a quieter day, but everyone went home happy and satisfied around lunchtime. Maybe the day went on a bit longer for some of us, but Joachim and I still had a longer way home, but we kept on chatting.

SpectrumCollection, among other things with desktop

I am very happy that I was there and that I got new impetus for my Spectrum-Hobby. Especially with the Next it will be more important to exchange experiences, there is a lot to discover. But you can also be amazed about the older units, especially the ZX81 scene always amazes me. In return for the infiltration of the Spectrumania I can only call to infiltrate the ZXTeam meeting in Mahlerts, hopefully in March 2021, too. I am there.

(Te)

The collection: ZX 81, ZX Spectrum, Nuvo

»FOUR MINUTES TO MIDNIGHT«
ADVENTURE SOLUTION
BY HARALD LACK

Dear Spectrum Adventure friends,

Today I have again chosen a programme that I would like to solve together with you. It is the adventure game »4 Minutes to Midnight«, which was released by 8th Day Software already in 1985. It is based on a book by Stephen King and was written by Mike White and Martin Rennie using the Quill Adventure System. Before we take a closer look at the plan with its locations and later on the step-by-step solution, a few program hints in advance. First we come to the short background story of this adventure:

In this, in my humble opinion, very demanding adventure game, the player has the task to gather the right five people around him to free them from their sometimes quite unpleasant situation and with their help to deactivate the missiles, which constantly threaten us with a possible explosion. Sounds easy, but it is definitely not, because these people have the unpleasant characteristic of developing a certain life of their own. That is why we must always keep an eye on who is in our Community. So much for the background of this adventure. And as you can easily see from the title, it's really urgent again.

But now I would like to get rid of a »few« hints of a general nature, which are not directly related to the step-by-step adventure solution listed below, but might be useful for one or the other, if he or she does not want to use the following overall solution. The list of game hints and tips does not claim to be complete. Let us begin:

As mentioned before, five different people have to be brought together to form a team, as this is the only way to solve the adventure game. The special characteristics of each individual are important. Sue drives the bus, Dave and Bill are always in demand when physical strength is required, Sam is the specialist when it comes to generators or when the computer is to be loaded onto a cart later.

Sylvia's talent is to calm people down. She is supported by Sue. In the beginning it is very important to recruit Dave right away. Sue is the only one who can drive the bus. Before the bus can be refuelled, the pumps have to run (actually logical). We can use the bike if we want to go a little faster when crossing the Long Highway towards Petrol Station. In the city Sue's help is needed. We should also take some strong boys with us who can handle the lift door on the first floor of the department stores. We also need the spanner, which is in the car in the tunnel. Under no circumstances are we allowed to take other people with us when we climb up the shaft on the ropes of the lift. They would fall down. We also need the gloves we found in the hotel. Be sure to jump up on the second floor. But first we should get the rope from the department stores. When we are on the second floor we should go to the window, open it and take the object from the wall ledge. Once we have recruited Sue, we go up to the roof of the store, tie the rope there and climb down to the Street Floor. With the help of the lathe machine from the store we make a key out of the metal part. We need the key to access different buildings. But to make the key we need people with a lot of engineering knowledge. To get Sue out of the tunnel we have to knock her out. But don't worry, she will wake up again. We can safely ignore the ringing phone (red herring). Two special tools and some engineering is necessary to repair the generator. The non-conductive boots must be worn here. When it is repaired, we walk south until the »bumper car« arrives. With this we go to the »big dipper« and here we get out. From here it is not possible to go back. So we go down to the bottom of the »dipper«. In the bank vault we take the book, but leave the money, because we don't need it. If we have Dave with us (the strongest one of all) we could take both items, but as I said be-

fore, it is not necessary. When we enter the small town for the first time, we are put to a test. If the bus breaks down without fuel, we go to the church and with the jug we found before, we go on to the petrol tanks. We fill the jug, go back to the bus, refuel it and drive away. When we enter the computer centre, the maniac can only be calmed down by Sue and Sylvia. In the Command Centre we have to connect the computer. To do this, we first have to use our best efforts to get the computer there by means of a truck. Then we connect the cables and switch on the computer. To get to the main menu of the computer we need a number which we find in the paperback (DIAL 1922). Soon everything in the computer centre should work correctly. The correct answer to the first question is »YES«. Now, after each action we have to look closely at the screen to stay in the picture. Under no circumstances should we leave the room, because the computer will then destroy itself. There is also a relatively tight time limit to deactivate the nuclear missiles. The corresponding information can be found in the four menu items. To deactivate the three missiles and to gain a good number of points we enter the following commands: TYPE OXC, TYPE OYB, TYPE OZA. After the computer has increased our points it will switch itself off.

We now have to get a bottle with bacteria from the disease centre. First we have to deactivate the vacuum chamber by pressing the correct button. Pay close attention to the display. If we have the bottle with us, the »road block« should not be a problem for us. Only one person at a time is allowed to accompany us when we pass through the camp. We should also pay attention to our hunger. Regarding the labyrinths, I refer to the overall solution below. To get additional words and general help, a TYPE HELP is always useful. Sue is a nice girl, so we should only hit her in the tunnel and only once. There are always random elements in this game, which does not necessarily make it easier to get ahead. Therefore it can't hurt to save the score more often. We should also be careful not to lose anyone from our group. When everyone is already with us and we get the hint that it is getting dark, we leave one of them in a location nearby. Other good points for leaving our comrades-in-arms behind are everywhere where there is food or in the bus. Sylvia is the one who often runs away. When all the characters are together, this happens rather by chance without any obvious system, so keep your eyes open. After a certain number of steps, we also need sleep. Then enter SLEEP twice and WAIT once and we should feel fit again. With the RECRUIT command we can bring people back into our group who were temporarily absent. If we don't know who is not with us we use the PARTY command.

So much for these basichints and tips. I simply noted them down as they appeared in my handwritten notes. These are also meant for those who do not (yet) want to use the overall solution below and would rather jump on the task themselves. It is up to everyone.

But now let's get to the printed plan, its locations and the found objects.

1) On the fourcourt of a small gas station beside several neglected gasoline pumps / dusty minibus
2) Beside a large box / buttons
3) In a burning car / Dave Kellern
4) On a long road leading east and west
5) On a small rise over a large city
6) On a freeway that leads south / small BMX bicycle
7) On the corner of east 4th and 5th
8) In a looted drugstore
9) In the tunnel
10) Crawling on the roof of a shattered car
11) Inside the cars beside the drivers seat / 12" spanner
12) Just inside the exit of the tunnel by a huge pile of rotting bodies
13) On the westside at the junction of 6th and 7th
14) Northside of 3rd and 2nd below the blocks of westside
15) East of blocks 8th and 9th west of westside and north of the road leading to the south
16) Outside a towering department store south of 4th and 5th
17) Outside a once plush hotel
18) In the lobby of the hotel / pair of delicate ladies, leather gloves
19) North of the warehouse on the inside of the store in the narrow hosiery department
20) On the first floor at the top of the escalator / heavily bolted lift door
21) North of the store warehouse south of the first floor / Bill Price
22) In the cold store warehouse A
23) In the cold store warehouse B

24) Amongst blocks of packed stinking ice in the cold store / coiled rope
25) In a graffiti covered lift
26) On the roof of the lift below a set of greased steel cables in the lift shaft
27) Clinging to thick steel cables high above the lift
28) On the second floor by an open lift shaft
29) At the western end of a line of registers beside lines of dirty windows / Sue Youart
30) On a slim window ledge / set of wires, jackplugs, strange edge connectors
31) South of the department by an open fire exit
32) On the roof of the store overlooking the city
33) Seated in the cab of a grubby minibus
34) Travelling for a while
35) At the northern end of a street along a small town by the entrance to a rustic school / dusty minibus
36) In an empty classroom below a large blackboard / Sylvia Wade
37) At the southern end of the street outside a small provincial bank
38) Before a counter in the bank
39) In the vault beside thick security doors / suitcase full of dollars, small military style pocketbook
40) Below a huge gas tank
41) West of a small wooden slat church in the shadow of a tall gasoline tank
42) In the alcove of the church by an open entrance door leading to the east
43) Amongst pews beside rows on kneeling corpses / petrol can
44) On a steel platform half way up the tank
45) Atop the tank
46) At the end of a long drive by an abandoned checkpoint / dusty minibus
47) Beneath the embedded concrete silos that run in spaced distances both west and south / pair of insulated boots
48) Outside a large fairground / dusty minibus
49) At the base of the towering big dipper that rises high into the air above you
50) In the silent fairground
51) In the hall of mirrors A
52) In the hall of mirrors B
53) In the hall of mirrors C / large screwdriver
54) Beside a row of rusted metal swings / Sam Wieyenski
55) North of the fairground / electrical generator
56) In a bumper car
57) On the top of the big dipper / strip of strong metall, roller coaster car
58) In the foyer of a cold stone bunker / horribly burnt old man in the doorway
59) In the cluttered spares department

So, dear friends, these were the 59 locations with the objects and people to be found there. But now we have to get to work and make sure that we bring our task to a happy end.

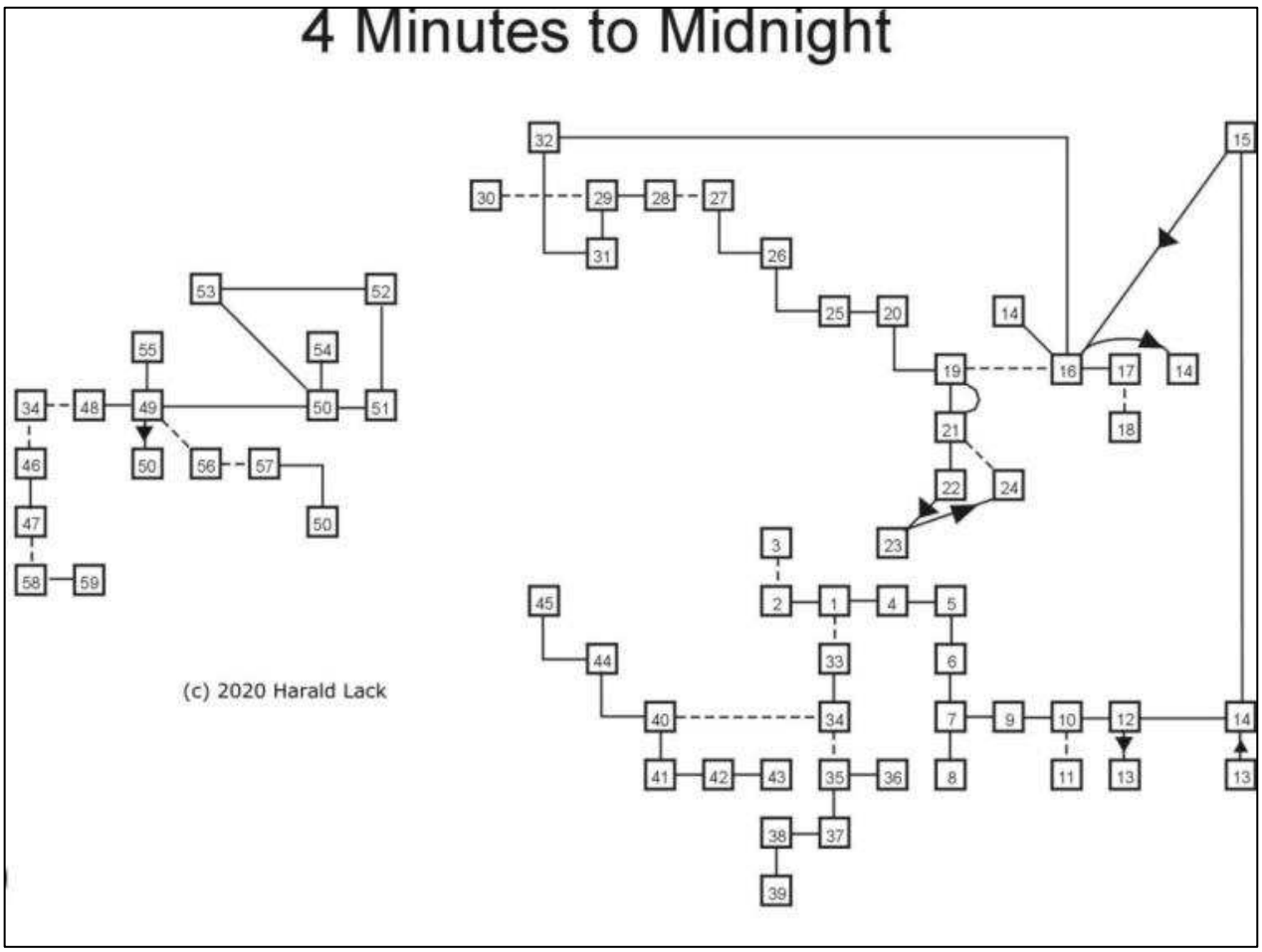
Here we go...

We start our adventure.... at a gas station and see an arriving car, W (we see three buttons), PRESS GREEN (we hear a call for help), IN, RECRUIT DAVE, OUT (the car explodes), HISTORY DAVE (he tells us, that the food is bacterially contaminated when you take it with you), E, E, E, S (there is a bicycle), TAKE BICYCLE, S, S, SLEEP (2 x), WAIT (we are in a shop with food), N, E, E, DROP BICYCLE, IN, TAKE SPANNER, OUT, E, S, N, N, SW, E, IN, TAKE GLOVES, OUT, W, IN, UP (the door is locked with bolts), REMOVE BOLTS (the door falls down the shaft), DOWN, S (there's Dave), S, RECRUIT BILL, HISTORY BILL (he tells us, that there is a nuclear command base in the south, where the missiles must be deactivated by means of the correct commands in the computers), S, SW, NE, TAKE ROPE, OUT, NE, LEAVE BILL UP, W, UP (there are greasy cables), WEAR GLOVES, UP, JUMP, W (there is Sue), OPEN WINDOW, TAKE WIRES, OPEN WINDOW, RECRUIT SUE, HISTORY SUE (she tells us about a refugee camp), S, UP, ASK SUE (she tells us that we should actually come down with a rope), TIE ROPE, DOWN ROPE, IN, RECRUIT DAVE, RECRUIT BILL, FEED SUE, FEED DAVE, FEED BILL, EAT FOOD, OUT, NW, W, W (it's too dark here) HIT SUE, TAKE SUE, W, TAKE BICYCLE, W, W, N, RECRUIT SUE, N, W, W, DROP BICYCLE, IN, S, LEAVE SUE, OUT, E (there is Sylvia), W, S, W, S, TAKE BOOK (we ignore the suitcase), N, E, N, EXAMINE BOOK (Commander Walker), READ BOOK, PRESS PAGE, READ BOOK, PRESS PAGE, READ BOOK, PRESS PAGE, E, RECRUIT SYLVIA, HISTORY SYLVIA, W, IN, RECRUIT SUE, LEAVE BILL, LEAVE SYLVIA, S, S, OUT, SLEEP (2 x), WAIT . GO S, E, E, TAKE CAN, W, W, N, UP, UP, FILL CAN, DOWN, DOWN, FILL BUS, IN, S, LEAVE SUE, OUT, S, TAKE BOOTS, N, IN, RECRUIT SUE, N, LEAVE SUE, RECRUIT BILL, OUT, E, S E, N, FEED BILL, FEED DAVE, EAT FOOD, W, TAKE SCREWDRIVER, SE, N, RECRUIT SAM, HISTORY SAM, S, W, N, WEAR BOOTS, FIX GENERATOR, S (a

roller coaster car rolls down), IN, PRESS GO, OUT, TAKE METAL, DOWN, W, W, IN, RECRUIT SUE, N, N, LEAVE SUE, OUT, TAKE BICYCLE, E, E, S, S, E, E, S, N, DROP BICYCLE, N, SW, IN, SLEEP (2 x), WAIT, UP, INSERT METAL (we use it as a key), DOWN, FEED BILL, FEED SAM, FEED DAVE, EAT FOOD, OUT, NW, TAKE BICYCLE, W, W, W, N, N, W, W, DROP BICYCLE. GO IN, RECRUIT SUE, S, S, S, RECRUIT SYLVIA, RECRUIT SYLVIA, OUT, S, LEAVE DAVE, LEAVE BILL, LEAVE SAM, OPEN DOOR (the crazy man runs away), N, RECRUIT DAVE, RECRUIT BILL, RECRUIT SAM, RECRUIT SYLVIA, OPEN DOOR, E, FEED SUE, FEED SYLVIA, FEED SAM, FEED BILL, FEED DAVE, EAT FOOD, W, S, TAKE TROLLEY, (we check our troop to see who is missing or who is hungry), RECRUIT SYLVIA, RECRUIT SYLVIA, RECRUIT SYLVIA, N, W, TAKE COMPUTER, E, S, INSERT ELECTRICAL, PRESS ON, DIAL 1922, TYPE YES (now it's time to play games), EXAMINE SCREEN (there is a menu), TYPE 1 (security options), EXAMINE SCREEN, TYPE 2, EXAMINE SCREEN (we see different locations and displays), TYPE 3, EXAMINE SCREEN, TYPE 4, EXAMINE SCREEN, TYPE ZA0 (first missile deactivated), TYPE YB0 (second missile deactivated), TYPE XC0 (third missile deactivated) for the moment we leave Sylvia here). GO N, E (we feed everyone including us), W, N, N, IN, LEAVE DAVE, LEAVE SUE, LEAVE BILL, LEAVE SAM, OUT, S, OPEN DOOR, S, RECRUIT SYLVIA, N, E, FEED SAM, FEED SYLVIA, EAT FOOD, SLEEP (2 x), WAIT, W, N, N, IN, LEAVE SYLVIA, LEAVE, RECRUIT SUE, E, LEAVE SUE, OUT, W, NW, OPEN DOOR, N, E, EXAMINE PANEL (on and off switch), PRESS OFF, OPEN DOOR, TAKE BOTTLE, W, S, W, SW, E, IN, RECRUIT SUE, RECRUIT SYLVIA, OUT, W, SW, SE, S, EAT FOOD, FEED SUE, FEED SYLVIA, LEAVE SYLVIA, N, E, E, NW, N, SW, E, E, E, LEAVE SUE, W, W, W, NE, S, S, W, W, S, RECRUIT SYLVIA, GO N, E, E, NW, N, SW, E, E, E, LEAVE SYLVIA, W, W, W, W, NE, S, S, W, W, W, IN, RECRUIT DAVE, RECRUIT BILL, RECRUIT SAM, OUT, W, SW, SE, S, FEED DAVE, FEED BILL, FEED SAM, LEAVE BILL, LEAVE DAVE, N, E, E, NW, N, SW, E, E, SLEEP (2 x), WAIT, LEAVE SAM, W, W, W, NE, S, S, W, W, S, RECRUIT DAVE, EAT FOOD, N, E, E, NW, N, SW, E, E, LEAVE DAVE, W, W, W, NE, S, S, W, W, S, RECRUIT BILL, EAT FOOD, N, E, E, NW, N, SW, E, E, E, LEAVE BILL. Done. Score 100%

The adventure is solved and we can once again sit back and relax and be happy about the success.

Until the next adventure solution here at this point.



TIPS & TRICKS
BY THOMAS EBERLE

Brigitte Eberle (yes, my mother) told me the codes for her favourite games. With the codes you always get directly to the corresponding level without having to play the previous levels. (Te)

HEXAGONIA

2. MAGICAL
3. ATOMICS
4. FANTASY
5. KHAZAD DUM
6. DISATER
7. SYMPHONY
8. X RAYS
9. LEVEL 9
10. BLAH BLAH
11. DUNGEON
12. AUTO GUN
13. ILUVATAR
14. D SING
15. UTOPIA
16. AY MUSIC
17. DIABOLUS
18. OXYGENE
19. SCARAMLING
20. UNIVERSE
21. DAMERON
22. CATHEDRAL
23. STAEALTH
24. HELLOWEN
25. DIGITAL
26. ABAQUAR
27. THRILLER
28. SMASHING
29. AGONIA
30. CHRYSALIDS
31. BUG BYTE
32. ERIDANUS
33. DETONATION
34. FIRE WORX
35. AAAAARGH
36. GHOSTBUST
37. COMPACT
38. BAD DREAM
39. OOPS UP
40. BREAKDOWN
41. WARRIOR
42. TERRORPOD
43. VALTARUS
44. THE AMIGA
45. DESTINY
46. SKELETOR
47. CRYSTALION
48. THUNDER

QUDRAX

1. CLAUN (evtl. CLAUD)
2. HATUS
3. ATLAS
4. SPINA
5. DIODA
6. ISSAK
7. HLAVA
8. CONAN
9. PEKLO
10. ZYXTY
11. OBRAZ
12. KOPEC
13. QUEEN
14. POHAR
15. ULTRA
16. STORM
17. HOBIT
18. LAMPA
19. ROXET
20. MBHLR
21. DAMME
22. POZOR
23. KABAT
24. SLOVO
25. VYTAH
26. KOMIK
27. PARIS
28. KAMEN
29. ZORMI
30. FINTA
31. RIEKA
32. WORLD
33. THELA
34. KAKAO
35. PRSTY
36. FERDO
37. QADER
38. MAKSY
39. KOCKA
40. COMOP
41. ABBBD
42. KMPTP
43. JHCKN
44. ZYXQW
45. ALKLA
46. AMRAK
47. RAMRA
48. JURRR
49. QWYXX

THE DIVIDE PLUS - PART 1 - THE HARDWARE
BY SCOTT-FALK HÜHN

GENERAL INFORMATION

Most Spectrum friends will be familiar with the DivIDE. It has been on the market for many years and is still available today (status autumn 2020). Even better known is probably the further development DivMMC, which is available in several versions and works with SD cards in contrast to the DivIDE. In this article I would like to introduce the not so well known big brother of the DivIDE, the DivIDE Plus. The DivIDE Plus is a Polish further development of the DivIDE and differs from its predecessor by the following extensions:

- Extension of the ROM from 8kB to 512kB (Flash memory instead of EEPROM)
- Expansion of the RAM from 32kB to 512kB (buffered by a battery)
- simultaneous installation of several operating systems (firmware's) possible

- the management of the firmware's is done via an additional I/OPort (23, $17)
- implemented Spectrum-Bus
- Integrated slot for one CompactFlash card
- the Spectrum 128/+2/+3 can use the 128k mode (with restrictions)
- Supplied as a complete device in a housing

The DivIDE Plus remains fully compatible with the DivIDE, meaning that all firmware available for the DivIDE will also run on the DivIDE Plus. There is also another firmware available that cannot be used on the simple DivIDE due to limited resources. Another advantage of the DivIDE Plus is that by expanding the memory and other measures, multiple firmwares' can be installed and selected via an OUT command. Each firmware is assigned its own RAM bank in addition to a flash memory bank. To get you started right away, the DivIDE Plus comes with the following pre-installed firmware:

- FATware
- DEMFIR
- DIVIDE
- MDOS3
- ResiDOS

Unfortunately, the DivIDE Plus is no longer in production and is rarely offered as a second-hand device on major trading platforms. I bought my copy in spring 2007 from the only dealer »RWAP Software«.

https://www.rwapsoftware.co.uk/index.html]

was put on a long waiting list and received my interface in December 2007 at a price of £62,50 + £6,50 for shipping, which was about 90€. At the moment you can read a lot about the DivIDE Plus on RWAP, but unfortunately there is no information about the price and availability.

https://www.rwapsoftware.co.uk/spectrum/spectrum_storage.html

After all, you can read here that a total of 158 DivIDE Plus have been sold.

I would also like to mention that older DivIDE Plus units had problems with some firmware that caused them to crash. ESXDOS did not run on these devices either. However, the developers have responded by optimizing the three GALs of the DivIDE Plus. This GAL-Upgrade-Set is still available on *SellMyRetro*. So if a DivIDE Plus you bought second-hand shows similar problems, it's probably because of the GALs.

At this point I would like to point out the DivIDE Plus manual, which contains 140 pages of information about the interface and the various firmware's. The manual can be downloaded from Velesoft

https://velesoft.speccy.cz/zx/divide/divide_plus/divide_plus.htm

THE HARDWARE IN DETAIL

The DivIDE Plus comes in a more or less stylish black case. A small circuit board with a ribbon cable on the top of the housing is striking, and the SpectrumBus is led out through it. This looks a bit odd, but has the advantage that the bus lines remain relatively short and do not have to be routed through the entire interface. Another interface can be plugged in here, and this is then located practically on top of the DivIDE Plus. At least theoretically, because the original spacer bolts are too long, so an interface that is plugged in will hang very unstably in the air. So I shortened the bolts to 7mm and then everything fits perfectly.

On the top of the DivIDE Plus, there are three LEDs in the back, which have the same meaning as on the simple DivIDE:

- BUSY (red) Accessing an ID device (read or write)
- MAPRAM (yellow) the MAPRAM mode is active

- POWER (green) the DivIDE Plus is powered

On the rear side of the housing there is a 40-pin connector for connecting a maximum of two IDE/ATA devices, such as hard disks, drives for removable media or adapters for CompactFlash cards (CF cards). In addition, a slot for a CF card is located below the IDE connector. This means that the IDE/CF adapter required for the simple DivIDE can be omitted. There are also two jumpers and a button next to the IDE connector. The button has the same function as on the DivIDE, it triggers an NMI. The two jumpers are used to configure the DivIDE Plus:

- The jumper next to the NMI button (left, seen from behind) is plugged in during normal operation. In this state, the write protection for the flash memory is activated, thus preventing accidental overwriting. If a new firmware is to be installed in the flash memory, the jumper must be removed during the installation process. An open jumper also disables some DivIDE Plus features. However, in my experience, it is possible to install a new firmware with the jumper in place.
- The jumper next to the IDE connector (on the right when viewed from behind) must be in place if the CF card slot is to be used. In this case, an inserted card works alone at the IDE connector and is managed as IDE master. The 40-pin IDE connector cannot be used in this case. If the jumper is removed, the CF card slot is switched off and the IDE connection is available for 2 devices.
- If the DivIDE Plus is to be connected to a ZX Spectrum +2A, +2B or +3, it is very important to add a third jumper, which is unfortunately inside the case. The case of my interface was sealed with a kind of hot glue, and if you are very careful you can open it non-destructively. This could have been solved better. In my case the access to the jumper was not necessary, but i was curious and wanted to take a look inside :) Also photos of the circuit board can be taken (recommended).

View of the bus extension

Not much is said about the inner workings of the DivIDE Plus, and I haven't been able to get a schematic yet. There is only information about an early prototype called DiwIDE, but this does not necessarily apply to the current version. But on the circuit board you can see the following distinctive ICs: a 29F040 (512kB FlashROM), a K6X4008 (512kB SRAM), three GAL22V10 and several logic ICs of the 74LS series.

Furthermore the large battery (CR2032) on the board is noticeable, which ensures that the RAM is supplied with power even when the Spectrum is switched off. This enables the permanent storage of firmware that is only loaded into the RAM, such as ResiDOS. In addition, the settings of all firmware's are retained, e.g. with FATware the last cursor position in the Disk Browser or with ResiDOS the last selected directory. It would have been nice to have an integrated clock (RTC), so that the files get a reasonable time stamp when writing to FAT media.

The memory management works similar to the simple DivIDE, i.e. there are 8kB large ROM banks, which can be mapped into the address area 08191 ($0000$1FFF) and 8kB large RAM banks, which can occupy the address area 819216383 ($2000$3FFF). In MAPRAM mode, it is also possible to use a RAM bank in address area 08191 ($0000$1FFF). As with the simple DivIDE, the memory banks are selected via I/OPort 227 ($E3).

Since the DivIDE Plus has much more memory available, the management of this has had to be extended. In addition to the DivIDE's familiar

memory management, the DivIDE Plus has an advanced memory management system that divides the 512kB ROM and 512kB RAM (depending on the operating mode) into 16 or 32 areas of 32kB or 16kB respectively. In each of these areas, a firmware can be permanently installed and within such an area, the simple DivIDE's subordinate memory management will take effect.

Rear side with IDE and jumper

To control the extended memory management, a port has been set up at I/O address 23 ($17) and an OUT command at this address can be used to select the desired memory area and thus the desired firmware. However, the DivIDE Plus' port 23 offers a few more possibilities, so a chapter of this article will focus specifically on this port.

Connection of IDE devices

The DivIDE Plus offers two options for connecting ID devices:

At first the Standard 40-pin IDE connector: This allows 1 or 2 IDE devices to be connected and operated using a standard 40-pin ribbon cable. These can be hard disk drives or drives with removable media (CD, DVD, MO, ZIP), whereby a single drive must be configured as »Master« or »Single«. If there are two devices connected to the port, one device must be configured as the »master« and one as the »slave«. All devices connected to the IDE naturally need a power supply, usually +5V and +12V. These voltages should be provided by a separate power supply.

Important: The jumper next to the IDE connection must be removed in this case and no CF card should be inserted.

Second option is the slot for a CF card: This is located below the IDE connector and can accept a standard CF card. Very important: The upper side of the card must face down! This could probably not be realized technically in any other way and is not a disadvantage. Furthermore, to activate the card slot, the jumper directly next to the IDE connector must be inserted. The CF card is then managed as IDE master, the IDE connector is offline.

A combination of these two connections together is not possible. If you want to use two CF cards with the DivIDE Plus, you will need to use a dual-card IDE/CF adapter, which is plugged into the 40-pin IDE connector. The +5V required for this purpose can be taken from connector 29 of the IDE connector.

At this point a basic note: For plugging and unplugging an IDE cable or IDE device the Spectrum and all IDE devices should be switched off and this also applies to changing CF cards. When using IDE devices with an external power supply, the power supplies of the Spectrum and the additional devices should be switched on and off simultaneously if possible. When using mechanical data carriers such as hard disks and CD/DVD drives, it must be taken into account that the devices need a few seconds to start up and can only be used after that. In this case it is recommended to start the desired firmware only after an appropriate waiting period or to restart it if necessary.

And another note on the memory size of the IDE devices and media used: the DivIDE Plus manual mentions a maximum memory size of 2GB for CF cards. I only use CF cards up to 2GB myself, so I couldn't test if more would work. Technically speaking, there's nothing to be said against it. The limit probably comes from the FAT file system, which can only manage a maximum of 2GB. Some firmwares do not use a file system and can manage more memory. I will point this out with every firmware, if exact data is known.

Will be continued...

(sfh)

DivIDE Plus board: Top side with slot

DivIDE Plus board: bottom side with CF card slot

THE ORIC ATMOS - STORY OF A FAILURE

BY JOACHIM GEUPEL

The second computer from the era of the 80s computers I am presenting here is the ORIC Atmos. It is the successor of the ORIC 1 and differs in a much improved case and some error corrections in the ROM.

The *ORIC Atmos* was developed in 1984 by Tangerine Computers Ltd. as the penultimate device in a series of computers. The story of Tangerine Computers Ltd. tells how it shouldn't be done, as this company went bankrupt only eight years later.

Dr. Paul Johnson and Barry Muncaster both came from Cambridge Consultants Ltd. and founded Tangerine Computers Ltd. in October 1979. Their first work was the Microtan 65, a board with 1kByte RAM and 1kByte ROM, which could be built into a larger case together with other boards. The system monitor was programmed by Mike Rose, who worked at Sinclair at that time. The Microtan 65 was sold for 59,95£ and soon had a fan base.

The Microtan 65

The Microtan 65 was followed by the Tantel 170, a greatly expanded Microtan 65 that sold relatively well. The design of the Tangerine Tiger desktop computer, a CPM capable machine, could have been the success for Tangerine Computers, but it was sold to H.H. Elektronics and due to the bankruptcy of their parent company, the Tantel 170 was never produced. The Tangerine Tiger, however, is the basis for the ORIC 1, the name *Oric* being an anagram made from the last four letters of the word »micro«, which the managing director John Tullis had thought up.

In 1982 Tangerine Computers Ltd. became Oric Products International Ltd., which marketed the ORIC. At that time, the ZX 81 was already a fixture in England and Sinclair had the largest market share with its successor ZX Spectrum. The ORIC 1 was announced for August 1982, but this did not happen. The first pre-series models distributed to trade journalists were faulty and not fully developed, so that they did not work for the most part, but there were also no Instructions or a manual. Accordingly, some people were advised against buying them, among other things because no manual was supplied.

In January 1983, the Oric Atmos was finally ready to go into production, so that it could be delivered. Its features were slightly better than those of the ZX Spectrum 48, due to the sound chip AY38912 from General Instruments. A version of Microsoft Basic 1.0 was implemented as Basic and was called Oric Extended Basic. The ROM version 1.0 was buggy, which was mainly shown by the error checking routine of the cassette control and it took several attempts to load a tape.

At the time of the release of the ORIC Atmos, Tangerine Computer Systems Ltd. and Oric Products International Ltd. were already in financial distress, as the hoped-for sales figures lagged behind the actual number of units sold.

In January 1985 the Oric Headquarters in Ascot closed down, it was no longer able to act due to the dismissal of most of its employees. In February the company Oric was placed under a liquidator and was finally wounded up in England at the end of June 1985. The successor company in France was able to survive until December 1987, and then Oric International filed for insolvency. This marked the end of the Oric era.

The predecessor of the *Oric Atmos*: the *Oric 1*

The ORIC Atmos

The Oric Atmos is actually an ORIC 1 with Issue3 board. The keyboard is much better than the small keycaps of the ORIC 1. The worst bugs in the ROM were fixed, its processing speed was a bit higher. The Atmos could be upgraded with several extensions like a speech synthesizer, a joystick interface, a real time clock, a floppy disk drive and some other additions.

The interfaces: HF, Tape & RGB, Centronics and system bus

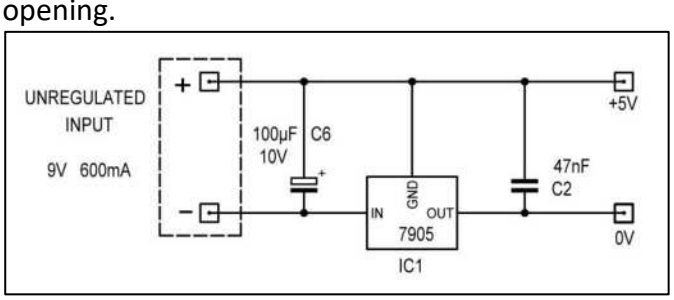
It has a 6502A processor and is clocked with 1MHz. The RAM memory is 48kB, the ROM with operating system and Microsoft Basic 1.0 is 16kByte. In addition to the familiar commands, the Basic also has sound effect commands such as ZAP, PING, SHOOT and EXPLODE, which are generated by the sound chip and reproduced via the built-in loudspeaker.

The computer is equipped with plenty of interfaces. In addition to the obligatory connection of the power supply unit, there is also the equally obligatory UHF output. In addition to the power input, there is also the 34-pin expansion port and the 22-pin Centronics-compatible printer interface. An RGB signal with composite sync is available via a 5-pin DIN socket and the cassette recorder is connected to a 7-pin DIN socket. As a special feature, a mono sound signal can also be picked up here.

Inside, the Atmos makes a tidy impression. It is dominated by the relatively large loudspeaker, which also makes a lot of noise. Beside the ROM there is a place for an extension of the software, but it was never used. The main board is plugged onto the bottom side of the keyboard, which in turn is screwed to the case. Disassembling the Oric Atmos is very easy: remove the bottom of the case, unscrew three screws between the connectors, lift off the board and unplug the keyboard, unscrew five screws of the keyboard and lift it out of the top part, and it is disassembled.

Other computers like the Acorn BBC computers are much more difficult to disassemble. Unexpected is the position of the reset button. It is located on the back and can be accessed through a 7 x 9 mm opening in the bottom part of the computer.

To activate the reset you need either a sharp little finger or a suitable object that fits through the opening.



The strange power supply of the Oric Atmos

Curious and unexpected is the power supply. An unregulated 9V voltage is applied to the power socket and stabilised by a negative voltage regulator 7905. The output of the voltage regulator then represents the reference of the power supply, i.e. the 0V, and at the same time the 9V are stabilised to +5V. Not immediately obvious and you have to get used to it first...

OricComputer power-on screen

Start screen of the Oric Atmos

The start-up screen after switching on is very characteristic of the Oric. Just as the ZX Spectrum 48 shows many thin vertical red lines that build up

and immediately disappear, the Oric Atmos first shows four different long horizontal bars that disappear after three seconds before the startup message appears.
If RAMs with different access times and from different manufacturers are used instead of the existing ones, the four horizontal bars give way to an undefined and somewhat curious picture. But the computer still runs without errors after booting.
The graphic resolution is 220x240 pixels and in text mode 25 lines â 40 characters are output. The colour capability is roughly equivalent to the ZX Spectrum with eight colours. The frequency range of the sound output is impressive. It starts at 15 Hz, ends at 62kHz and thus covers seven octaves.

The Oric Atmos from inside

All in all, the Oric Atmos is a beautiful computer. It is solidly built and compact. The keyboard has 58 keys in the international QWERTY arrangement. Personally, I like the computer, it's fun, as long as you can deal with the problems of loading the tape input.
Further information can be found under the links

https://computersmuseum.com/

https://computersmuseum.com/history-of-computers/oric-1982-1989/

They are highly recommended.
There is an interesting website for the Microtan 65:

http://oric.free.fr/microtan.html

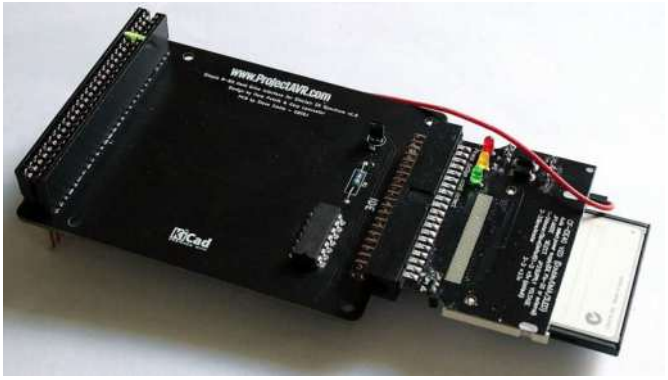
with Java emulator, manuals and circuit diagram.
Not to be forgotten are the replicas of the Oric Atmos, which are only briefly listed here.
In Bulgaria the Oric Atmos was offered as »Prawez 8D«. It was not 100% identical; instead of the 6502, the CM630 was installed, and the AY3-8912 was used as sound chip. The operating system was DOS 8D, which is 100% compatible with DOS version 3 of the APPLE II!
Less inventive was the Yugoslav Nova 64, which was manufactured under license by the Avtotehna company. It was built exactly like the Oric Atmos in almost all areas. 5000 pieces of him were made according to Wikipedia.

(jg)

8-BIT IDE INTERFACE FOR THE ZX SPECTRUM +3

BY JOACHIM GEUPEL

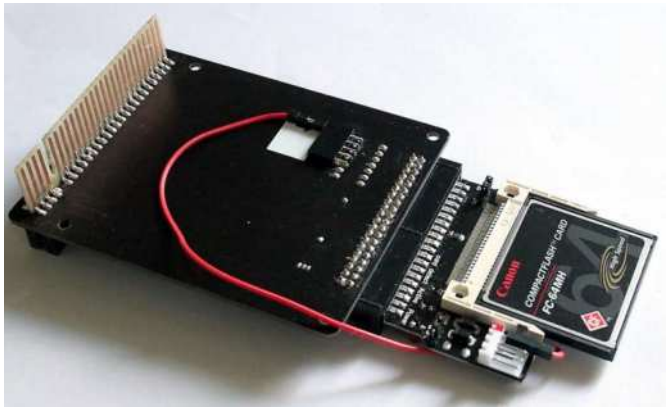
What, another IDE interface? Of course! We don't want to deprive you of the existential achievements for the ZX Spectrum! This IDE interface is characterised by simplicity and has both advantages and some disadvantages. Make up your own mind.



The 8Bit IDES interface

The 8-bit IDE interface is a simple IDE interface for the Spectrum +2A, +2B and +3 computers. It has a very simple design and consists of a total of six parts: the circuit board, a slot connector, an IC, a transistor, a resistor and a 40-pin header.
First of all: what does IDE actually mean?
IDE stands for Integrated Device Electronics, but is also known as Intelligent Drive Electronics. In the end, both terms mean the same thing. The term was coined by Western Digital and was more or less a commissioned work by Compac. IDE data is transmitted in parallel and usually has a data width of 16 bits. From the interface the standard ATA or ATAPI has developed.
IDE is a hard disk interface, where the control electronics or the controller is integrated into the hard disk housing. The fully wired IDE has a data bus of 16 bit width and manages a maximum of

508 megabytes of memory without additional drivers. The maximum transfer rate as ATAPI7 version is 133 megabytes per second, which the Spectrum of course cannot match.



Rear side with self-made bus extension and voltage connection for the CF card

If you are interested in more information, the following links lead to the corresponding pages.

Wikipedia

en.wikipedia.org/wiki/ATA/ATAPI

Electronics Compendium

www.elektronikkompendium.de/sites/com/0501021.htm

ITServices24

www.itservice24.com/lexikon/i/ideschnittstelle/

Spectrum+3 attached with 8BitIDE and Gotek drive

Since the data bus width of the 8-bit IDE is only eight bits, as the name suggests, only half the data is used. The range from D0 to D7 is used, the upper range from D8 to D15 remains unused, which is why only half of the maximum possible memory space is available from each data carrier. So a 512 MB CF card becomes a 256 MB CF card, a 64 MB card becomes a 32 MB card.

The interface is available in two versions. The external version, which is described here, is simply plugged onto the Edge Connector of the Spectrum, the internal version is plugged onto the Z80-IC socket of the Spectrum +3, where the processor is placed.

In order to use the interface at all, the original ROMs of the ZX Spectrum+3 must be replaced with Garry Lancaster's revised ROMs marked +3e.

On *World of Spectrum* at

https://worldofspectrum.org/zxplus3e/p3eroms.html

the images of the ROMs can be found, as well as the comprehensive explanation.

The German translation is available on *Tlienhard.com* at

https://forum.tlienhard.com/phpBB3/viewtopic.php?f=6&t=3455

to find. Alternatively it can be requested from me as a PDF. Email is sufficient.

Home screen: Disk A & B, IDE C & D and RAMDisk

If the new EPROMs are installed, the Spectrum will show its normal start message. This is the copyright of Garry Lancaster and the version of the system added. In the line below you can find the physical drives, i.e. at the +3 at least one floppy disk drive, the Ramdisk and the attached IDE interface. The fourth line shows the logical drives. The +3e system can manage a maximum of two partitions; if they are initialised, they are also displayed.

The +3e-ROM offers besides the IDE-extension a lot of new commands, like creating multiple windows and the possibility to freely define the character size in the windows in a relatively large area. Narrow fonts are offered as well as wide and high fonts, a window management is available, which

makes it possible to open and program single output windows. The windows can be scrolled independently of each other, and the windows and fonts can also be coloured.
As a conclusion, the Spectrum in combination with the IDE interface and the new +3eROM is really fun. On World of Spectrum you can download both the ROMs and the new layout of the interfaces.
If the ROMs are installed in a Spectrum +2A or +2B, the computer in the StartLoader will not report with 128 +3e but with 128 +2e. So there is an automatic system recognition.
The extensive change in the system entails two changes or limitations. One is that the test screen, which can be called up at the 2A/2B and +3 at startup, is omitted for space reasons. In addition, compatibility has suffered somewhat. The PlusDligt, the replica of the PlusD floppy interface no longer works. During the test on the Spectrum +2A the floppy drive ran permanently to the mechanical stop, which was not the case before.
The hobbyists among us can download the new layouts of the board on World of Spectrum. Alternatively, various suppliers on Ebay offer blank boards for internal and external versions.
By the way: The difference between ZX Spectrum +2A and ZX Spectrum +2B is not the colour, as is often mistakenly assumed. The Spectrum +2, also known as ZX Spectrum grey, is a standalone device and has some hardware differences to its successors. The +2A series computers were built in England, while the +2B was manufactured in Singapore.

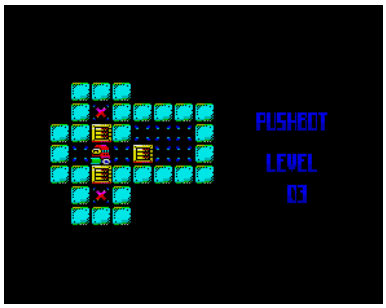
(jg)

GAMES 2018

BY THOMAS EBERLE AND ELLVIS

Moving on to the second part of the 2018 games, thanks to Ellivs' help we can now test more games and catch up, so hopefully we will be up to date soon. At this point it makes sense that as a »side-product« of the reviews we also create the Scene+ disk and deliver a selection of the best programs converted for your disk system to your home. This is another reason why it is important to catch up with the current programmes soon. Therefore we do not write about every game, because the number of releases is still high. We have also decided to exclude NEXT programs for the time being and to limit ourselves to the classic Spectrum models in this section.
So we will continue:

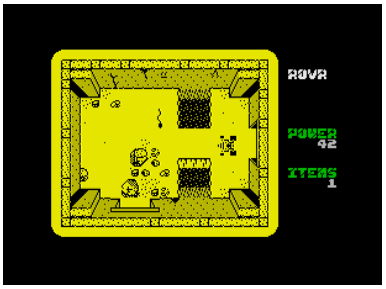
PUSHBOT - *DAVE HUGHES*



Very popular for puzzle games is the good old principle of Sokoban.
That means you have to move boxes to certain fields. The problem is, you can only push the boxes, not pull them. If you push a box e.g. against a wall, you cannot stand behind it to push. This is how tricky puzzles arise. This principle already existed several hundred times, but what stands out in this version is the graphics with the Nirvana-Engine. So more colours per attribute are possible, more precisely you can display two colours within 8x2 pixels with the Nirvana engine, the normal spectrum mode has only 2 colours in 8x8 raster. This is only possible with sprites, so usually the whole screen graphic is displayed as sprites. But with all the nice graphics, it remains the old game principle. Who still likes to fiddle around is well served here. The game offers no sound, but it does what it is supposed to do, just move boxes.

https://spectrumcomputing.co.uk/zxdb/sinclair/entries/0032306/Pushbot.tap.zip

ROVR - *PAUL JENKINSON*



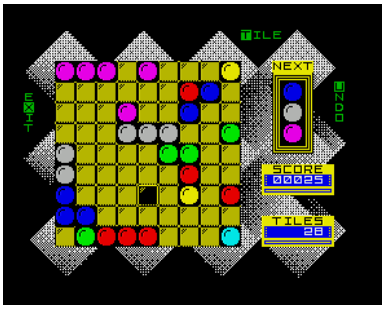
Paul, who is always hard-working, goes on a new mission. This time with a vehicle which is equipped with a drill. Unlike in other maze games this has the advantage that you can drill your way through some backgrounds. This does not give you complete freedom of movement, only a few stones can be broken through, these are marked with a cross. Basically you drive with your vehicle through a pseudo-3D labyrinth and have to search for some objects. Numerous creatures of different kinds hinder you, they are not always easy to

avoid. If you touch them, you lose energy. The same applies to drilling. If you run out of energy, you should go back to the start, there is the charging station.

Even though I have seen many labyrinth games before, with the drill and the charging function this game offers 2 new extras. Besides that, there is unfortunately little surprising or new to see, also the monochrome graphics are not quite up to date. The vehicle moves well but is also not very animated. Besides the driving noises there is no sound in the game, only an AY soundtrack in the main menu. The game is certainly not a bad one, at times it is also fun. Give it a try:

https://spectrumcomputing.co.uk/zxdb/sinclair/entries/0034297/ROVR.tap.zip

Gem Slider - *MoNsTeR*

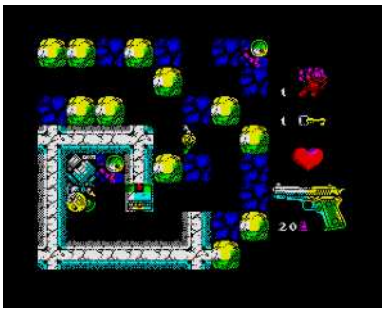


Once again a puzzle game, first work of a new author. You have a playing field with 9 x 9 squares and some stones of different colours. You may move these stones on the playing field, the distance doesn't matter as long as it is free and the way is not blocked by other stones. If you get 5 stones of one colour in a row, no matter if horizontal, vertical or diagonal, they disappear and you get points. But for every stone you move, three new ones will follow. You guessed it, it is a game in which only the highscore counts, at some point it always ends. The white stones can be used as jokers, otherwise you have to be very skilled and even then you can have bad luck. In the display on the right you can see which 3 stones are next, but you don't know where they are placed. Easy to learn but tricky.

The graphics are more than good for this purpose. The game also has a background sound and a title melody in menu. The soundtrack is suitable for background music, if it is annoying just turn off. The game itself is fun for a long time and you can always invite yourself in. You can download it under:

https://spectrumcomputing.co.uk/zxdb/sinclair/entries/0034300/GemSlider.tap.zip

The World War Simulator: Part 2 - *Retrobytes Productions*



So there we have the second part, 6 years after the first part was published. No time on the Spectrum, after all new Dizzy or Jet-Set-Willy games are still being released. But I didn't understand the first part and so I was curious about the second part.

But if you thought it was a strategy or war game, you will be disappointed. In the end it is a normal labyrinth game, the hero walks through the corridors, looking for some secret documents, keys and ammunition. The ammunition then brings in the militant part, because individual guards are on the move in the rooms. You can try to scurry past at the right moment, but if the guard notices you, they will be shot and with the submachine gun they are superior to our armament. So ambush and shoot as long as you have ammunition. It's not that adventurous, you've seen it many times before. The game does not have the action of Gauntlet or Duet and not the sophistication of modern maze games like Vade Retro etc. I found the mines scattered everywhere annoying, which explode at the slightest touch. The animation is not pixel by pixel, I estimate it to be about 4 pixels per step. So it is sometimes difficult to estimate if you can take another step. One too many ... Boom. What remains is good and colourful graphics, meagre and sometimes annoying sound effects and a gameplay that is only entertaining but of course not worse than many other games of this genre.

Download under:

https://spectrumcomputing.co.uk/entry/34346/Misc/The_World_War_Simulator_PART_2

Inertia - *goblinish [Dmitry Krapivin]*

Behind Inertia hides a special kind of puzzle game. There are different symbols on a playing field of 8 x 10 fields. The green figure is the player. This figure can be moved in one direction and moves in that direction until the player is stopped

by a symbol. There are walls on which the figure cannot move. Then there are permeable bubbles that stop the player for one move, but let you move on in the next move. Then there are mines that blow up the player and end the game and finally the diamonds that have to be collected. You guessed it, so you have to collect all diamonds without blowing up. There are no levels, with key »N« you make a restart and a random level is created. Questionable if screens are always feasible, partly I didn't think so. Maybe I was too stupid.
The game is graphically rather simple but sufficient. It entertains with a nice AY soundtrack and is very entertaining. If you want to puzzle about a picture for a longer time, you can write down a displayed code and continue another time. The right one for puzzle fans. Download:

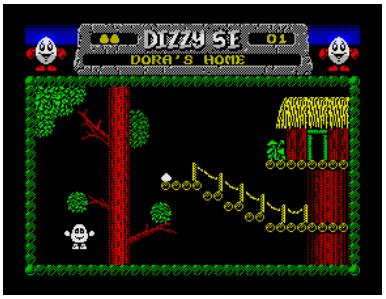
https://spectrumcomputing.co.uk/entry/34345/ZX-Spectrum/Inertia

HIBERNATED - *POND SOFT (STEFAN VOGT)*

Adventures are currently booming again, but still rare is Spectrum Software from Germany. But Stefan Vogt does not have to hide behind any English-speaking author.
This can happen to anyone... you wake up almost 100 years too early from your hypersleep chamber and have to find the reason. Hibernated is not only a computer game, it is a science fiction story that has class and captivates you (ok, I admit, if you like science fiction).
The game is a text-only adventure, so it contains no graphics except the writing. If you don't know adventure games: you enter your commands as words on the keyboard, usually a very simple English one with two words, e.g. GO WEST , TAKE RIFLE etc. There are some commands that you always need, e.g. EXAMINE to have a closer look and usually LOOK calls up the text again that describes the room. But exactly this command is missing, which is a pity if you can't see the room description after a few tries because it scrolled up. You can leave the room and go back in again, but that seems awkward.
Apart from that the game is really fun because the story is captivating. A must for science fiction adventure fans. Download:

http://www.pondsoft.uk/hibernated.html

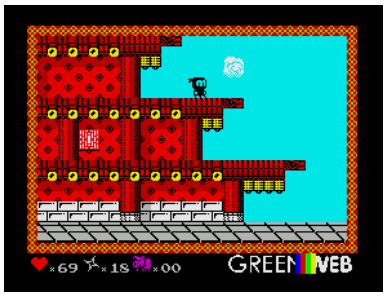
DIZZY AND THE MYSTICAL LETTER - *HIPPIMAN + GOGIN*



I think next to Miner Willy, Dizzy is probably the most famous Spectrum hero. Even though the game principle is always the same and has been copied a few times, in the end there is only one original. Or there are several... at least other authors. Like some non-commercial Dizzy titles before, this title comes from Russia and not from the original authors, the Oliver Twins, although they are also preparing a new title (this will be a commercial release for Spectrum and Spectrum NEXT). The present title is freely available on the internet, but is in no way inferior to commercial earlier Dizzy plays.
The story: Ding Dong, the postman at the door. A registered letter... but Dizzy cannot identify himself. Oh dear, so the first task is to find his papers in Dizzy's chaos household. A little dusting can't hurt... This is only the first of many tasks. All Dizzy games have one thing in common: You find the right mixture between difficult puzzles and yet not so difficult that it gets frustrating. You are happy when you have solved a puzzle, which mostly consists of putting the right item in the right place. Add to this a few real jumps for joystick artists and you can solve any dizzy game. I didn't get that far in the test, but it was really fun again after the long absence of dizzy. Whether the original Enigne was used here or an own development, at least you don´t see a difference. The game fits seamlessly into the series of the other Dizzy games, the same fine and colourful graphics, the same animation and jumps and also this time as always a really nice AY sound which alone motivates to continue. If someone doesn't know Dizzy yet, he can join in here. Who already knows it, won't be able to do anything else but download this title:

https://zxart.ee/eng/software/game/arcade/adventure/dizzy-and-the-mystical-letter/dizzy-and-the-mystical-letter1/

NINJAKUL IN THE AUIC TEMPLE - *GREENWEBSEVILLA [ANTONIO PEREZ]*



Evil ninjas have plundered the temple. As a good ninja it is your task to win back the temple. Roughly translated this is the task. Only stupid think is, that they sent the ninja unarmed into the mission, but some throwing stars can be found quickly.

The temple is divided into typical platforms, skilful jumps are necessary to reach the goal. The other ninjas also have throwing stars and unfortunately they also hit damn good. Unfortunately the shuriken are running out too, but if you look for them you will find new stars.

The game offers fast action, good graphics and a nice sound. What I dislike a little is the controls, which are exact, but also difficult because of the high game speed. So you have to make quite exact jumps, e.g. to get from one platform to the next. But because its so fast, you have to release the keys in time, otherwise you have to make another jump and leave the platform again. I usually test with the keyboard, maybe it is better with joystick, but I don't think so. Nevertheless the game is feasible, the difficulty level screams a bit for Pokes, but with some practice you can go far. The sound was a bit too dramatic for me with some shrill tones. Certainly not bad, just not quite my taste.

Still, if you like fast action, you can get the game. It doesn't cost anything, but you can make a voluntary donation. If the action is still valid, the proceeds will go to a retro computer museum in Madrid. Download the game:

https://greenwebsevilla.itch.io/ninjakul-in-the-auic-temple

BOBBY CARROT - *DIVER, QUIET, KYV, ZORBA*

Bobby is a rabbit with big apetite. And he love the modern technology. But as it's time to harvest the carrots, he may need us to help him to get all the carrots from his over-engineered gardens. On the other hand, we have nothing else to do, so why not?

Bobby Carrot is a logical game. Each level consist of one garden that we have to walk through and get all the carrots. At the beginning it is really just like that, but new levels keep adding more and more obstacles. We will come to one way passages that change into nails after we walk over so we cannot go back, various bridges that change orientation once we walk through them, switches, conveyor belts, locks and so on. In later levels we will find out that there is more technology then carrots themselves. And that keep us thinking harder and harder. After we collect all the carrots, we have to go to the exit which is marked by red circles. They start to be animated once we collect everything we need.

After select the controls, we jump into the game. Using fire button we get a menu. This is important for 2 reasons. First one is the fact, that the view on playing area is small. When we start new level, it is hard to plan a solution if we don't know how the garden look like. For this purpose there is an option »Look around«. Selecting this we can move around the whole level and see what is going on there. Second important option is »Lose life«. Sometimes we will come to the situation that is unsolvable and this is the only way how to try again current level. Rest of the options are »Continue« playing (current level) and »Quit« the game.

At the top of the screen we can see ascending Time counter and next to it Steps counter. Both are used to measure our score (and that can be saved and loaded back for competitions between friends). On the very top left we see a number of our lives left (we will get a bonus life every few levels) and next to it is a number of carrots we still have to collect in current level. Right from the time is a place for things we pick up (keys) during the play.

Graphics is very nice and very colourful. There is not much of animations besides the conveyor belts and the rabbit himself. The movement is done by attribute blocks. There are some attribute clashes here and there, but overall it is very neatly looking game. We get a nice tune for AY during the game play together with some sound effects. There are separate versions for Speccy 48k and 128k that differ by the view area, 48k version have pretty small game area surrounded by graphics, 128k version play nearly fullscreen. There is also a Help page included in 128k version. Bobby Carrot

is a great addition to new logic games and everybody who like such games won't be disappointed!
Bobby Carrot is a remake of the from FDG Mobile-Games and was released in ZX-DEV Conversions 2017 competition. Download it here:

https://spectrumcomputing.co.uk/entry/32212/ZX-Spectrum/Bobby_Carrot

Cheril in Bosque en Otro Bosque - *The Mojon-Twins*

This review was supposed to be easy and fast. I just went to the internet, downloaded the game, read instructions, played it till end, made few screenshots and wrote pretty positive review as the game was not too difficult, playability was good and the map was not huge but simple to remember. And then I realized I got a wrong game.
In 2010, Ubhres Productions released a game named Cheril of the Bosque (Cheril of the forest). It was a rather nice game about a girl called Cheril, who decided to leave her home forest and went to live into big city. For that she had to collect 13 giant nuts for her 13 days long journey. In 2018 The Mojon Twins released a sequel named Cheril in the bosque en otro bosque (Cheril of the forest in another forest). Let's take a closer look on it.
We are in a role of Cheril, a girl that want to (for various reasons) escape the forest she is currently in. For this we have to do 2 things - collect 27 nuts and talk to other people. Talking is a bit tricky, we have to talk to others in right order. Every person will tell us to who to go to talk to next. Good thing is that very first person is right in the first screen, so at least this is easy. Please note that the game is all in Spanish, so it is better if you do understand that language (I don't speak Spanish at all). If not, the hint is that the person to talk to next is mentioned at the end of the dialogue, for example Ramiro el Vampiro. Also, the order is different with every new game!
The forest is not an empty place, we have to avoid everything that moves and not just that, also mushrooms and orange stones will kill us on touch. We start with 7 lives and once a while we can get more of them picking up the roasted chicken. Another important things are the keys and red boxes. Keys open locked doors (obviously) and red boxes can be moved (using fire + direction). If box is moved against enemy, it will kill it. When we leave the screen and return back, the box will be on it's initial place and enemy will be back.
The graphic is colourful and nice, but due detailed background sometimes we have problem to follow our heroine. Also, it happened to me on quite a few places that I lost lives without any obvious reason. But game map is not very big and game itself is playable nicely. There is no music, we will get usual beep sounds but nothing special.
All at all, *Cheril in the bosque en otro bosque* is nice game that is not too difficult to win. It is also nothing original and if you played few games of this type already, you will find nothing new here. But it may appeal to those who learn Spanish language, maybe?
Download it here:

https://www.mojontwins.com/juegos_mojonos/cheril-in-the-bosque-en-otro-bosque-zx-cpc/

Chibi Akumas - *Keith S.*

What will you do when you're dead but you're too evil even for the hell itself? Well, you just enjoy being immortal and slaughter people, right? That is exactly what Chibi Akumas was doing. Until one day a huge invasion of monsters found her unprepared. And of course she cannot just let it be...
What we have here is something unusual on the Speccy. First seen on coin-ups from far east (Japan) in late 80's, it is a shoot'em up with something that is called a »bullet hell«. It means that basically all the screen is filled up with bullets and we have to try to find a way through those and keep on firing to destroy the enemies. From the nature of this I wouldn't say I will ever see something like this on the old humble Spectrum!
Chibi Akumas is a shooter. We're flying from left to the right and shooting at everything that moves. Destroyed enemies release a coin, it doesn't matter if we want to pick those up or not, they will always fly to us so we don't have to worry about that. Some enemies are easy to kill, some

need a bit more shots. And all of them will keep filling the screen with their own bullets! Because enemies come from all directions, we have to shoot also backwards. The game deal with that by simple way - we have 2 fire buttons, one for shooting right and other for shooting left. One more firebutton is for smart bombs which clean up the screen, but we have just limited number of those.

At the end of each level we face a massive boss. Be it a huge skull spider, Pokémon (yes, really!) or a submarine, it is always big. As we fight our way through, we can see the damage our shots are doing to the enemy. The action is so frantic, that it is usually the only thing letting us know that we're close to finish the level.

Important thing on the whole game is that it's not taking itself very seriously. It is full of jokes and irony, expect things that are exaggerated. And I think it really work. If I get a screen absurdly full of bullets, I should get also absurd story and presentation. And that is exactly what we can see here. The graphics is very colourful, detailed backgrounds, even scrolling in paralax. Enemies are also big and colourful. Everything that is not background is moving by 8 pixels, so it minimizes colourclash (but bullets cause a hell of it anyway). Our own shots are very tiny compared to anything else on the screen (and luckily it's enough to keep the fire pressed). And things slow down considerably when the action is at it are full. Game is not hiding it, even music slows down. But it looks like that is just a part of the whole show (and push the Speccy to the max).

So, we have full screen action in colours and paralax scroll, we have music and sound effects, but what about the actual gameplay? Well, I don't think there is much of it. I found the 3rd level (water and underwater one) most playable, but still, without a fact that the game have over 50 credits (that is how much you can see »you're dead« message without having to start the game from scratch) I wouldn't pass any level at all. Even if levels are not really long, some boss battles (damn Pokemon!) are just impossible. On the other hand, things like going underwater in 3rd level (great thing!) or lights going on and off in the caves add a bit of simple details to the game. Even if it look more like a tech demo, at least for some time there is this »one more try« element.

Chibi Akumas is a game for 128k Spectrums, I was playing the +3 version (2 disks, intro + outro, each level begin with a short story update), there is also Betadisk version. It support 2 players game and is really funny to look at. It is first of it's kind on the Spectrum and surely look great, you just cannot go wrong by trying it!

This special game is distributed in Germany by PolyPlay, so it is a commercial release, and is sold with a beautiful box and on 3" disks for Spectrum +3.

Info's are available at:

https://www.polyplay.xyz/Chibi-Akumas-Collectors-Edition-ZX-Spectrum-35-Diskette_1

As far as I know, buyers also receive the TAP version on request, just ask when you buy.

AEON - SUNTEAM - (PAUL WELLER AND SERGEY LETYAGIN)

»This is a story of Jesper Goldenstark, his descendants and the fate of the planet Aeon.«

Aeon is a game with big ambitions. It is divided into 4 parts (each can be played separately, without a need of any code or finishing previous part) and everything is glued together with screens that are telling the main story. Without a hesitation, let's dive into the deep space!

After a month of surveying the distant worlds, Jesper Goldenstark landed on an unknown planet. Our first mission is to do a basic exploration of the place. We move from left to the right, jumping around the terrain obstacles. Important thing is, that the planet contain life (although it is not suited enough for us to walk around without a spacesuit) which we have to avoid. Because we are not moving very fast, avoiding the various life forms need a bit of planning before progressing. For example the eye-balls (or whatever it is) have to be sometimes jumped over a few times before we can leave the screen. Also some jumps have to be done precisely otherwise we will fall into one of many deadly lakes around. Because there is always some place on the screen where we can just stand and look around, planning of each screen can be done relatively safely. Of course that doesn't mean the game is easy! After a while we manage to jump around the screens and will enter a cave. Here we have to avoid also huge drops

from the ceiling. The cave is not too big and in a while we encounter it's end. There is something sparkling, when we take it, the story moves on and it is the time to load second part of the game.

Graphics of the first part is very nice. It is simple, but nicely drawn, everything is clear and also animate smoothly. Although we have to plan the jumps carefully, collision detection is very good and the game is very playable. After difficult sections we usually find an extra life which is very handy (we start with 5 lives). One note though, when you plan your way through the screen (the screens are not scrolling but flip), take care that you have enough of space above your head, if there are hills on the horizon too low, your jumps will be limited!

The sparkling thing we took at the end of first game was in fact an energy crystal. It was decided that those will be mined out of the Aeon to be a source of energy for mankind. Second part is taking us into a role of Jorda Goldenstark, son of Jesper. His mission is to find new potential mining spots around the Aeon. Now we are hovering above the surface of the planet. There is 9 surveys marked on the planet which we have to find. It is not that easy as it sound, there is already some infrastructure build up on the planet (huge pipes, that we have to go around, and tight passages) and also we have to avoid a winds that will break our hover. Good thing is that the surface we have to go through is not too big, so the map can be memorized within few tries.

Graphics of the second part is again very good. We can see right away what is an obstacle, our hover is reacting fast on key presses (although again it is not the fastest thing to drive around). I found that better tactic is to go slowly through each screen to see the patterns of the whirlwinds. This time we will not get any bonus life’s, so it is better to not risk too much any of our 4 lives we get at the beginning. Also note that our vehicle is stuck when it's touching the terrain / pipes, so count with that while hiding from the winds!

Now the story moves on and we're in a role of Jestra Goldenstark, a granddaughter of Jesper, who originaly found the planet and the first crystal. After Jesper died, his familly lost influence and she is not very wealthy now. Quite opposite, she have to take a dangerous job outside of the building in one the cities that has been built meanwhile on the Aeon. We are flying up around a tower building. On each screen we have to find a small attachment and fly to it so we can place a receiving dish. There is one on each screen, if we don't attach it, we cannot go further. There is a lot of windows and we have to be carefull because robots working inside throw unused stuff out of the windows. If we collide with the garbage we lose a life. This is the only part where the game is a little bit unfair, robots show up randomly and there is often a situation when we cannot do anything to prevent a collision. Also, flying saucers show up which also have to be avoided. When we fly to the top of the tower and place last dish, we move to the next tower. We have 4 lives for each tower, at least which is making things a little bit easier. The only tactics I've found helpful was to spend as little time in tiny corridors as possible. When the tower split into two ways, it doesn't matter which way we go, both lead to the top. There are just 3 towers at all.

Not much to say here, the graphics is very simple, our flying thing is really slow this time and we are often having problems to escape garbage and flying saucers. Although a bit unbalanced gameplay, it is worth to try as the game itself is not that big.

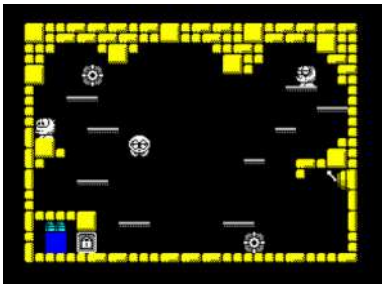
The last part of the story follows young Spencer Goldenstark, a son of Jestra. For various reasons, we have to help him to escape the Aeon. The story now connect with the beginning, Spencer have to get to the old space ship that is still there, the very one that was used by Jesper to find the Aeon planet. Spencer have to go through industrial ruins full of robots to reach the very top of the building. The game is again a platformer and it's first time in the whole game that Spencer as a main character is moving fast. The playability is very good and I find this part easier then all previous ones. Everything is again nicely drawn, moves smoothly and plays very well. There is always just one way out of the screen so we won't be lost. We have 5 lives at the beginning of the game but few bonus lives can be found along the way.

Overall I really enjoyed playing the Aeon. There is a variety in gameplay and it is not too long to be boring. Although 3rd part is a bit unfair, it is manageable in few tries. As the game was made using Arcade Game Designer, nothing is animating in the background, only the enemies and the main character sprite. There are good soundeffects for Spectrum 48k, if we play on the 128k Speccy we get a good AY tune (different one for each part). Every section has to be loaded separately, after we finish a game we have to reset the computer. One

remark about the story screens, they just load one after another from tape which make them to disappear too fast when loading from CF/SD card (and I guess the same apply also for the disk). If you want to see them (and read the story which I recommend), just MERGE the BASIC and put PAUSE 0 after every RANDOMIZE USR line.
All at all, Aeon is really nicely done game, bringing some variety glued together with a good story told in really nice graphics. If you like a challenge but won't spend too much time playing just one game, this is highly recommended! Download it:

https://sunteam.itch.io/aeon-zx-spectrum

Bean Brothers - Stonechat Productions (Dave Hughes and djnzx)



There are some people who constantly find a trouble. To make things worse, we've just met two of such, the Bean brothers. And as always, it is up to us to guide them out of the troubles!
There is 20 levels of obstacled action that will also need a bit of our brain. Each level consists of one screen in which we have to guide both brothers into the locked exit. And they will need to cooperate.
The main point is to use platforms and switches to unlock the exit and avoid the nasties. Some platforms are too high so the brothers have to cooperate - they can stand on each other's head so they can reach higher places. Also some switches have to be used few times, everything depend on the particular situation. Currently chosen brother is animated, so it is easy to spot who is being controlled. Quite often the action is frantic and we have to act fast right from the very beginning. On the other hand, we are supplied with unlimited lives, so we have as much tries as we need. Also, plan your moves, because game may end-up in a non-solvable state. In such a case you have to quit the game and start again (press pause key and then y).
The graphics is big and nicely drawn (pretty funny as always in Stonechat Productions games), everything move smoothly and plays really good. We have few sound effects for Speccy 48k and a good AY tune on 128k Speccy. Bean Brothers reminds me a game Quadrax from early 90's but here we have more action packet into neat presentation and it is definitely a great choice for modern gaming on the Speccy!
Download:

https://spectrumcomputing.co.uk/entry/34610/ZX-Spectrum/Bean_Brothers

Dead Zone - PCNONOGames (Juan Jesús Ligero, Antonio Roman, Sergio Beyker)

It doesn't matter how many times we did beat back an invasion, here is another one. There is no time for a siesta today, we have to hurry up to save the world once again.
In Dead Zone we face an alien invasion to the Earth. This time they came in huge amounts, are fast and they take people. Luckily, it seems they are attacking just one place at a time, so we still have a chance. For this we've got a kind of anti-air cannon and we will simply shoot down everything that is flying (or nearly everything). But as usualy, nothing is too simple.
We start at Giza. We can move our gunsight around the screen and we see some people at the bottom. Just within a moment, flying saucers start to come down from the top. We have to be fast and shoot them down. Their aim is to get the people and if they catch all of them, we lose. After a while a heavy helicotper fly to the screen from right and is slowly moving to the left. Don't shoot this one, it is comming to help us. After a while it will release a bonus in a form of automatic fire (A) - we just point our gunsight to it and it will be collected. Now we can just press the fire button once to shoot as many shots as needed. Or the bonus can be a bomb (B) which destroy every enemy on the screen.
The action becomes frantic in no time. There are UFOs filling the screen and lower they manage to come, more cautious we have to be, because we can shoot our own people. To add more to the action, there are trucks coming at the very bottom. They are very important as they bring us or repair or fuel. We need both of these to survive. Again, we just point our gunsight on the truck and we gather what it's carrying.

After a few tries we get a good confidence and pass the first level. Now we move to the Paris and things pretty much repeat. At the bottom we have our people again, flying saucers come down and we have to shoot them. The difference here is that a special hovering ships show up once a while and they actually shoot at us. We need to destroy them as soon as possible and they need more
then just one shot. Automatic fire come very handy here.

Although there is not much time to follow it, there is quite complex status bar at the right side of the screen. Let's see what we have there. At the very top it's actual score. Under that we see ammunition status, how many magazines we have left and how many single shots in actual magazine. Under the ammo we see a bomb, if it's flashing red, we can fire a bomb. Under that we have our fuel. Quite often we will run short on fuel, we have to catch the trucks at the bottom of the screen to refuel, beware that one truck can refuel only 50% of our need. Under the fuel we can see engine heat meter. This is showing us a damage we get when being shot by enemy spaceship. If we get 5 shots, we're over. To fix this, trucks down the screen carry repair box, we have to get these to fix our cannon. Under that we see a number of people we still have to protect and number of aliens we still have to shoot down.

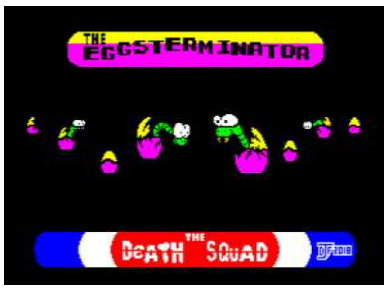
The last thing on the right status bar is a Status Screen. This is a bit special. During the gameplay we see two things here, Searching or Detected with a picture of a flying saucer. When this happen, we can shoot the saucer down. This way we don't have to be very precise with our gunsight and it helps a lot for the gameplay. Another thing we can see there are messages when we are low on fuel and if we are damaged (overheated due enemy shots). There are four (Giza, Paris, London and New York) levels to complete to finaly meet the alien mothership. That one have to be shoot down too, of course. Everything is done in simple but nice graphics with a few colour clashes, movement is good enough but with this frantic feeling »will I catch'em all?!«. There is a beeper music in the intro and AY music during the gameplay, sound effects go for beep. The game come in two modes, one will let you continue from where you ended (starting from 3rd level if you've seen a game over there, for example) or a mode where you have to go through everything all over again.

Dead Zone is a nice little shooter that sound, look and play very good. If you have enough of those platformers and also you're fed-up with all those logic games, this is exactly what you need, old good plain action! The game can be purchased for 8,75 pounds on real tape or for 1,90 pounds as a download from:

https://pcnonogames.itch.io/dead-zone-zx-spectrum-game-48128k

The site is in Spanish, English follows below.

The Eggsterminator - The Death Squad (Davey Sludge, Yerzmyey)



Terrorists are at it again! And this time they are especialy evil. They implanted snakes into chicken eggs. Luckily, there is Eggsterminator to sort out the thing.

The Eggsterminator is a small little arcade action one-screener from Davey Sludge. All his games are very recognizable due his own special way of doing graphics and this one is not an exception. We're in a role of Eggsterminator, a tough guy who have to smash all the eggs lying around. There are some enemies around the screen trying to stop us, some can be killed and some not. One strategic part of the game is the fact, that we can smash the eggs only from a side, not from above or below.

There are 3 kinds of enemies. The small ones can be punched and if doing so while there is no free space next to them, they will be killed and we get some points (and new enemy will appear on the screen). Big ones that cannot be killed or harmed, those can even eat us. And finally snakes. Those come slowly to the screen from a side. They can be punced into head from a side and they will go back a bit, but if we will leave them to fill in the screen, we can be blocked from finishing our task. They are blocked by eggs or stones.

Once a while we come across a screen with no eggs at all. Here we have to put 4 stones together, they will change for the eggs and we can smash those. It is very easy to find a way around the screen and smash the eggs. Game is a bit frantic, everything move by 8x8 points, but is very colour-

ful and playability is good. There is AY music playing during the game and we have also some sound effects. At the bottom we see a timer for each level, number of current level under that and then our score on the left, our energy in the middle and number of lives on the right (we start with 5 of them).
The *Eggsterminator* is small, action packed colourful game to kill a couple of minutes. Nothing longlasting, but surely a good choice when one have a few minutes to spend by playing a game.
Download at:

https://spectrumcomputing.co.uk/index.php?cat=96&id=34465

ELON M. WITH JETPACK - *RAFAEL VICO COSTA, THEPOPE. ERRAZKING*

Elon M. is a modern day technology wonder. He fly to the space and dream about conquering the Mars. But are the things so easy? Let's have a look on this Jetpac clone.
As a Jetpac clone, all the action happens on one screen. In the first level we have to collect 3 pieces of a rocket that show up one after another. When we have it, we have to collect six pieces of fuel. After that we enter the rocket itself and fly to another planet. Here the action continue, except we don't have to collect the rocket, that happen just once after few levels.
So, what is different here? First thing is the graphics. It is nicely drawn, colours are in good use. When we fill in the fuell, rocket is not showing us how much more we need by changing it's colour, we have a fuel meter above the playing area instead. Also when the rocket is readdy to fly, it is not flashing, it's just standing there waiting for us. Also our good old trusty laser gun can go overheated if we shoot too much. Luckily, it is not that big problem for the game itself. There is a simple AY music playing during the game and we get sound effects for beep.
What surprised me was the difficulty. I hardly managed to pass second level after couple of games. Somehow the original was far more playable for me. I still keep trying as I'd like to see how the other rockets look like, but this game is very challenging.
If you liked original Jetpac, I am sure you will also like this new version. All is there, even the old enemies made it into this version and who knows, maybe old version felt too easy so this can be the right game for a evening's alien zapping. Download to:

https://spectrumcomputing.co.uk/index.php?cat=96&id=34665

FILLOMANIA - *GOBLINISH*

Mathematic was never my strongest side. But somehow I am still a bit attracted to the numbers. So seeing this game I was sure I'd like to spend some time on it. And at the end, it wasn't really a bad choice.
Fillomania is modern version of some old Japanese puzzle. We have a board (screen) with some random numbers. What we have to do is to fill empty fields with more numbers, so nothing will stay empty. The rules are simple. If we have number 3, we have to place another two numbers 3 around it so we will get three numbers 3. This way the fields will change the background colour and we can move on to for the next number. What counts is only horizontal and vertical lines, no diagonals. When we place all the numbers correctly, we get a picture of a warrior (different one each level) and move on to next level.
We move the cursor by using cursor keys (it work both ways, with and without CAPS shift, so the game work nicely on real Spectrum and also in emulators using arrow keys on PC keyboard). Pressing ENTER on some number we will copy this number into clipboard (that is the red number left to the play area) and if we press ENTER on an empty field, the number from clipboard will be copied there. If we press SPACE, the number will be deleted. This is tricky, because we can delete also the numbers that we start with and the game cannot be won then, so take care which ones are you deleteing!
Fillomania is a nice little puzzler. Presentation is very minimal with a nice AY music, but it plays nicely and although once you find the way through first level it became a bit easy, it is still a nicely done game that wake up few parts of our logical thinking. Download on:

https://spectrumcomputing.co.uk/index.php?cat=96&id=34605

Old Tower - *Retro Souls*

There are places you just can't walk around without visiting. Even more urgent if you feel like there can be a treasure. When you see old tower in the middle of dark forest, you are sure you have to go in. What is waiting for you inside?

Right when you enter you see two things. The tower may be old, but it is not a ruin, it is not crumbling down but it is colourfull (very colourfull) and also, it is not empty. There are traps, bats and a lot of gold all around. It's narrow corridors attract you and more you go in, more you find that the way out won't be too easy. But that doesn't matter too much, there is so much to see, so much to explore!

Old tower is action puzzle game. In each level (a small part of the tower) we have to collect all the gold coins and then head to the exit. There is one basic rule - once we move, we will move untill we crash into something (a wall usually), then we stop and can choose another direction to move again. This complicate the things on one side, on the other hand we can climb up the walls and walk on the ceiling. We have to be carefull not to catch a bat or not to be shot by some old trap. Also, there are spikes to avoid (we can use them safely if we crash them from a side). More and more we advance, more we have to plan our moves because it will be easy to do a wrong move and level cannot be won. Also, in later levels we find out that we're not alone, but we can swith between two characters and they have to cooperate. Simply said, there is plenty to think about in each level.

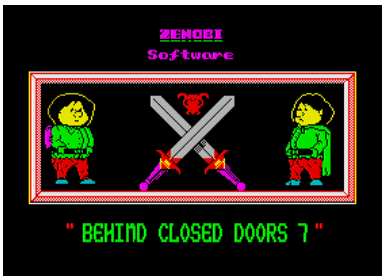
The game execution is just wonderfull. It is another example of properly implemented Nirvana multicolour engine, this time even with a smooth vertical scroll. The game is fast and there is always plenty of things happening on the screen. We start with 5 lives and it may seem plenty at the beginning, we will find out that it's not too much in later levels. Also, the cooperation of both characters becomes more and more crucial. There is 20 levels and even if they are not too difficult, they will take some time to go through. Also, we're not getting any passwords, so in case of game over, we have to play everything from scratch. There are two versions, 48kB with beep music and sounds and 128kB with a very good AY support.

Old Tower is one of those rare, very polished games, that stood out of the crowd and are always good for coming back to them and give it another go.

Catch it up:

https://spectrumcomputing.co.uk/entry/34458/ZX-Spectrum/Old_Tower?

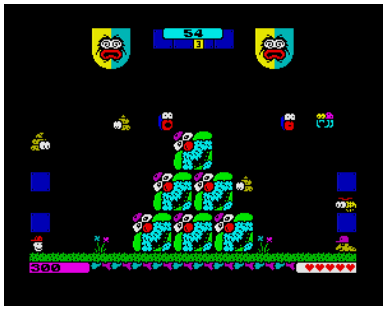
Behind Closed Doors 7 - *Zenobi*



Yes, you read that correctly. Zenobi is back at the Spectrum and there will be a lot of new things. The start for us is the latest sequel of the most famous adventure series of Zenobi, Behind closed doors. Once the player was stuck in a toilet house, in this part the toilet disappears completely. But of course that can't be allowed to happen, so we set out on a search. Describing an adventure game without giving away the whole content is of course difficult, so I limit myself to the technical things. The program is written as always with PAW. But what distinguishes Zenobi titles is always the special story with a lot of humour. The Spectrum knows an answer to almost everything and the puzzles are difficult, but not too difficult. It is a pure text adventure and apart from the key sounds you don't hear anything. The writing is a bit squiggly, but well readable. Not everybody likes adventures, it helped me to learn English in my school days. With a funny story, it is even more fun. Download from:

http://8bitag.com/games/bcd7.html

Pooper Scooper - *Death Squad*

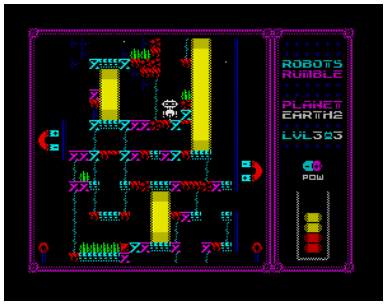


More and more titles of Death Squad are being released, but they all have one thing in common: they are all beautifully colourful. In this title, the four main actors of other games were

condemned to clean up the park together. You can take turns playing only one hero at a time, who has different tasks. One collects the dog poo, one takes care of the flowers etc. The whole thing takes place in a race against time, some opponents may not be touched, but that's all you have to consider.
The game is easy to understand and you are quickly in. In general it is very fast, despite the colourful graphics. Here we worked with very nice graphics, but not so exaggerated that the game field would be confusing. The animation is still attribute-wise and therefore a bit rough, but as said before it is fast. A groovy AY-sound provides musical entertainment, thus a quite useful title with fast action was created. Download to:

https://spectrumcomputing.co.uk/entry/34428/ZX-Spectrum/Pooper_Scooper

Robots Rumble - *Miguetelo*



We discover a completely new way of controlling with Robots Rumble. On the one hand, the robots are normally controlled by gravity (and fall down), but on the other hand they are also moved to the left and right by huge magnets. And exactly these magnets are controlled by the player. You simply start by using the magnet on the left, then the magnet on the right and then you guide the robot safely through the level. But it does not remain that simple. Because there are more obstacles, tractor beams and the like, which require quick action before the little robot falls into its doom. Very annoying, because then you start all over again.
The graphics are very neat, colourful without overloading and without colour clash. The control of course needs some getting used to, but this is due to the game. Not recommended with joystick, rather with keyboard. Unfortunately the sound is a bit short, which seems very familiar to me, but I can't get behind it. As the title melody already indicates Michael Jackson's »Billie Jean«, another pop song is played here, but only briefly. Tricky and entertaining entertainment once you get used to the controls. Dare to try it:

https://spectrumcomputing.co.uk/entry/34424/ZX-Spectrum/Robots_Rumble

Mini Explorer XXXI - *Rafael Vico Costa, THEPOPE, Errazking*

Time travell is never a good idea. You leave your humble time-era and when you come back, everything is different, or even wrong. And now it's even not just about our worl, but about a whole galaxy that will collapse if we don't find a particle RZ-800.
Mini Explorer is not your average platformer. Instead of that we get a small shoot'em up. The game is linear, we just walk (or fly as long as we have fuel) from right to the left and pick-up a particle at the last screen. No maze, no way to be lost in a labyrinth. But plenty of enemies to fight.
At the beginning we get 3 lives, some energy and fuell. Shots are unlimited (that is always a good thing!), fuell run out very fast, but it also appear quickly when we're on the ground. Energy is being replenished by killing the enemies. Talking about enemies, there are 2 kinds of them, ones just walk on the ground and have to jump over obstacles the same as we do. Second type is flying and a good thing is that they never come down to the lowest level of the ground, so we just walk underneath. Both types shoot at us, but shots can be destroyed (shots can be shot!).
As we walk the screens (through the forest, cemetery, meadow and so on), we come to the castle. It is closed and we cannot enter and also there was no key anywhere. We just have to keep on shooting at it and it will open it's door. But if we will lose a life, gate will by closed again and we have to shoot more. Another gate is inside the castle, we have to do the same.
Graphics is simple but nice, everything look small. There is introduction at the beginning of every game and a simple AY tune during the gameplay. Playability is good, although the game is not easy. But it is possible to finish it within few tries. My only advice here is: keep on shooting!
Download under:

https://spectrumcomputing.co.uk/index.php?cat=96&id=34666

Mister Kung Fu - Uprising Soft (Elton Bird, Andrew McDonnell, Tony Pastor)

Some things need more tries to be done properly. In the 80's we had Kung-Fu Master by U.S. Gold and it was pretty bad game (4th Least Pleasing Game - 1986 Crash Readers Awards). In 2018 few people decided that the game need a proper port (original is an arcade game) and they released a version that is really worth of playing. Although a bit different name, let's take a look how things should have looked like back in the 1986.

Our girlfriend Silvia was kidnapped and is being held in Devil's temple. His five sons are waiting for us there and fighting them is our only way to save her. But they are not alone, whole temple is full of Devil's servants.

We start at first floor and make our way from right to the left. As we move, enemies come from both sides and we have to use our Kung-Fu skills to beat them down. If we're not fast enough, enemies will catch us, our energy will go down and if we will not shake them off, we die. In this case, changing the directions fast will free us again. It need just a bit of practice and we will be pretty effective in kicks and jumps. After a while we encounter enemies, that throw knives at us. Those will need more then just one kick to be eliminated. When we come to the end of floor, another tough guy will appear, this time with a baseball-bat. After finishing him we finally see steps up that get us to the second floor.

Second floor is something a bit different. We walk back, from left to right and strange things start to happen. At first, things are falling on us from the top. Some barrels contain small snakes which we have to jump over. Some explode in the air and we have to avoid knives. And some contain dragons which will try to get us by a fire. Difficulty rise, what will wait for us next?

Above the playing area we can see two energy meters. Purple one is ours and green one is the enemies. As we make our way through the level, enemy energy will go down and it's empty by defeating the last enemy on the floor. Both energies are replenished at the begining of new level. There is also a time limit for each level and we can see number of our lives left under the playing area. The graphics here is really good. The sprites are detailed and background is simple, but colourful. Movement is very smooth and playability is really good. The game is fast paced and keep the action constantly ongoing on the screen. We get both, sound effects for BEEP and music for AY.

If this version would come out back in the 1986 it would be a definitive hit. And it is a hit also today, a game that is fast paced, nicely looking and greatly playable. It is not easy, but you cannot do a mistake by giving it a play! Download it:

http://uprising-games.com/home/mister-kung-fu/

Octukitty - Narwhal

Friendship between a cat and an octopus is not very common. If that happen, we can probably expect strange things to occur. And that is what's happening in Octukitty. We're on a quest to free our octopussy friend.

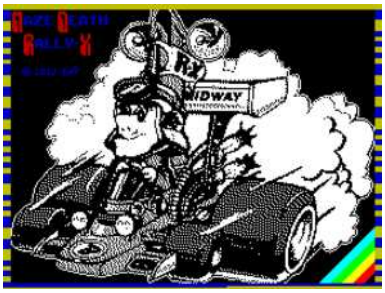
Octukitty is another platformer authored by AGD. We're in a role of a kitty who search for her friend that was kidnapped. We go from screen to screen finding our way through the obstacles. Interesting thing here is that sometimes we see more exits from the screen and we can choose which to use. But the game is still linear and we cannot really get lost. Another interesting thing on this game is an unexpected entrance to the underwater part of the game. It is a nice addition to the gameplay when we change from classic platformer to underwater and back.

We have to collect keys and there are quite a few additional lives to be found on our way through the game. Important things are the switches with have to be switched to allow us to pass certain screens. If any platform is above our reach, we can use firebutton to place a small kitty head and jump on it (but beware, it will disappear in a while) to reach more highs. All at all, the game is nicely playable and although not the easiest one, it is winable in few tries. The graphics is nice and the playability is good. Although we collect the keys, there is no indication if we currently have any. There is no music but we get usual sound effects. Octukitty is a nice game but it's true that we've

seen quite a lot of them in last years. At least it keep a standard of good looking and playable platformer game. Download them:

https://narwhal.itch.io/octukitty

Maze Death Rally-X - *Tom Dalby*



Cities are for slow drive, highways are for fast drive and Maze Death Rally-X is for driving without rules. Sounds fun? It really is! In this arcade conversion we drive a car around the maze. Our objective is to collect 10 flags avoiding other cars that are hunting us and alsorocks. We have to keep an eye on our fuel as it is depleting and there is no way to re-fuel, so we shouldn't waste much of it. We are not really helpless against other cars, we can slow them down releasing some of the fuel on the road. This will be needed a lot in later levels where the number of cars increase (there is just one in first level). Also, by hitting a wall we don't crash, the car will turn automatic (and usually other way we would like to go). This make things easier and driving around is really fun.

To help us reaching our goal, we have a radar to the right of playing area. We see other cars there and also all the flags we need to collect. What we don't see there are walls, but that is just a small obstacle. Above the radar we see our fuel meter and score, under the radar we see number of lives left and a level we're in.

Graphic is simple and clean, it follow the arcade original. Everything is colourful and move smoothly, controls react precisely and overall the playability is very high. There is also simple AY tune during the game (and can go onto the nerves pretty quick). If you like to drive and are in the mood of not following any rules, this is exactly the right game for you!

Download it on:

https://tomdalby.com/mdr-x.html

So that was the overview of the (in our opinion) best games in 2018. In the next issue we start with 2019 and some changes. Since 2019 also saw the appearance of more commercial software and the first titles for the Spectrum Next, we will create new sections for both. Especially for the section »Commercial Software for the Spectrum Next« we are still looking for testers. So if you have a Next and buy the games anyway, you can write about it and in return save the subscription fees for the Suc-Session. Just contact us:

thomas.eberle@sintech-shop.de

ZX Spectrum Paper Craft

Rocky Bergen is a designer from the USA.

He has been working in the design industry for more than 20 years and has the necessary experience. During this time he has trained in graphic and packaging design, motion graphics, illustration, advertising, pre-press, marketing and eLearning.

He earned a Bachelor of Fine Arts degree with a focus on drawing and video at the University of Minesota. At Red River College he studied Digital Media Design with a focus on Motion Graphics.

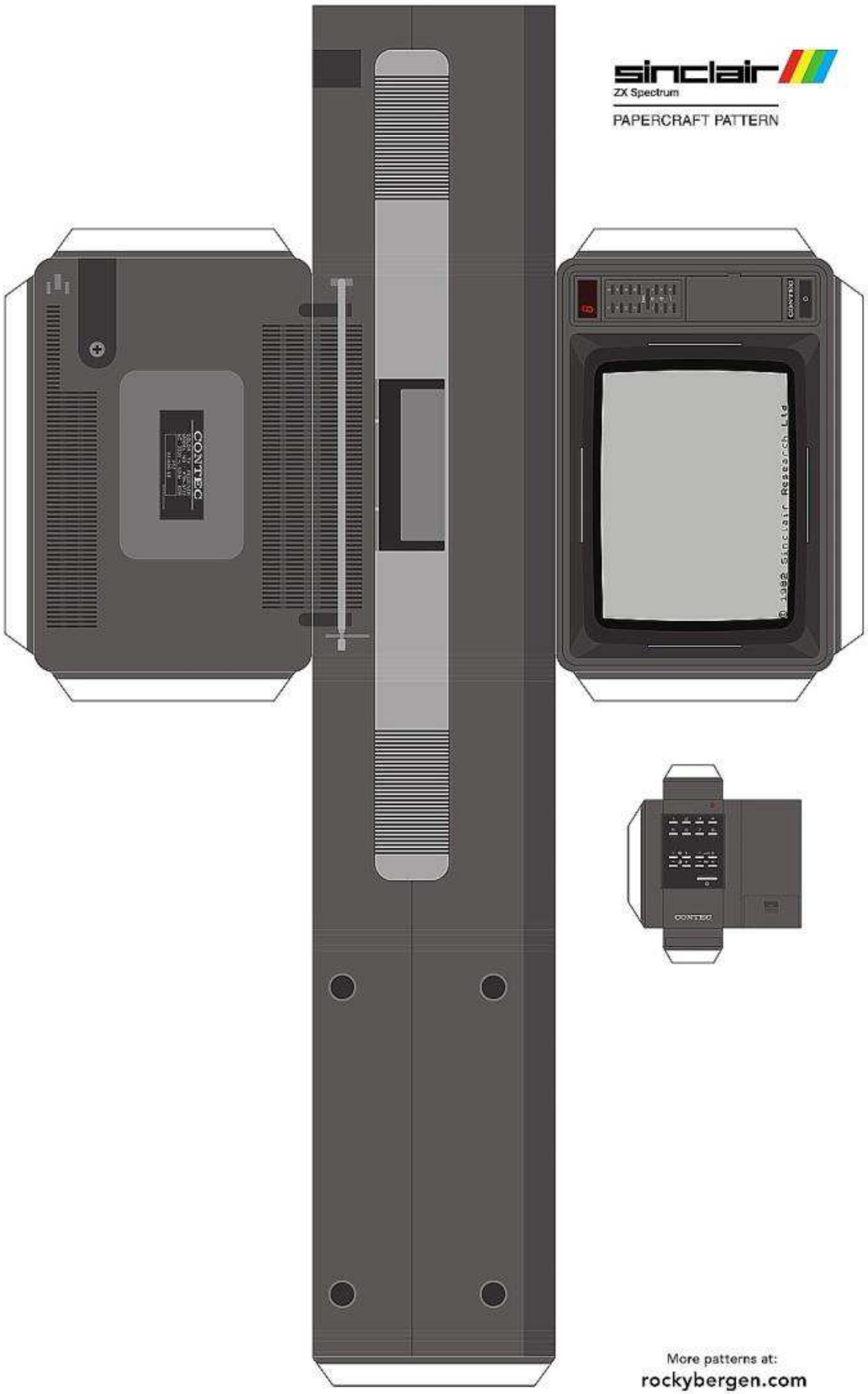
As a lifelong student, his personal interest in design has allowed him to experiment with industrial design, textiles and reverse engineering.

His design ideas can be seen on his website rockybergen.com. He is very versatile and his portfolio is enormously large. The Papercraft models of computers, in this particular case the ZX Spectrum, is only a narrow branch of his possibilities. The Papercraft models range from Apple IIe to Atari 520ST, the inevitable Commodore 64, IBM PC, ZX Spectrum, game consoles and ghetto blasters. The models are tiny and are quite a challenge to build. The cut sheets can be downloaded directly from the website and are free of charge. Building a ZX Spectrum 48 from paper is fun. The pictures and paper cut sheets are of course courtesy of Rockie Bergen. Good luck!

sinclair
ZX Spectrum

PAPERCRAFT PATTERN

More patterns at:
rockybergen.com


sinclair
ZX Spectrum
PAPERCRAFT PATTERN
CONTEC
© 1982 Sinclair Research Ltd
CONTEC
More patterns at:
rockybergen.com

sintech

www.sintech-shop.de

Ersatzteile, Zubehör und Reparaturen
für Mobiltelefone, Spielekonsolen und mehr

SINTECH GmbH
Kurmainzstr. 14 - 74389 Cleebronn

Retro Mund-Nase-Maske »Spectrum«

5,49€

Retro Mund-Nase-Maske »C-64«

5,49€

Bei Online-Bestellungen zuzüglich Versandkosten. Es gelten unsere AGB's unter https://www.sintech-shop.de/gtc

sintech DEUTSCHLAND sintech CZECH REPUBLIC sintech UNITED KINGDOM